Report on Texas Bridges

as of September 2003

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Prepared by the Bridge Division
Texas Department of Transportation

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Executive Summary

This report describes Texas publicly owned vehicular bridges and their condition as of September 2003 based on information in the Bridge Inspection Database, the Unified Transportation Program (UTP) planning document, and the Design and Construction Information System (DCIS). It describes bridges categorized by location either on or off the state highway system, by age, by type, and by main-span material. It describes the condition of Texas bridges in terms of sufficiency: sufficient bridges, structurally deficient bridges, functionally obsolete bridges, and sub-standard-for-load-only bridges. This report tracks annual progress toward TxDOT's goals to make at least 80% of Texas bridges good or better by September 2011 and to accelerate the upgrade of all structurally deficient on-system bridges, prioritizing critically deficient bridges, to eliminate all structurally deficient on-system bridges.

By documenting its efforts in the preceding year, this report also illustrates TxDOT strategies to plan, build, maintain, maximize, and manage key state resources to ensure that Texas bridges meet objectives from the TxDOT Strategic Plan 2003-2007:

- Reliable mobility
- Improved safety
- Responsible system preservation
- Streamlined project delivery
- Economic vitality

Texas had 48,457 bridges in September 2003, and their condition at that time is shown by the following figure (same as Figure 3-2).

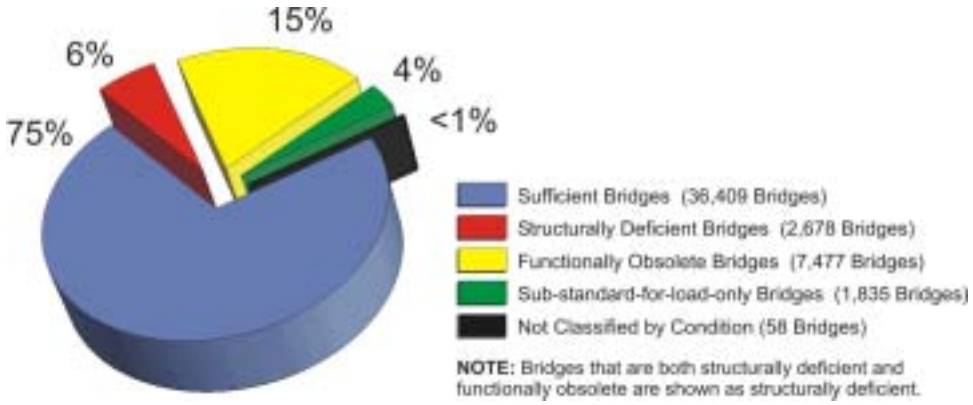


Figure ES-1. Condition of Texas Bridges by Count in September 2003 (48,457 Total)

A necessary adjustment in the bridge data set in September 2002 (see Chapter 3) resulted in two sets of FY 2003 numbers showing changes in bridge condition: apparent change (using pre-adjustment data) and real change (using post-adjustment data). In this report, comparisons of year-over-year bridge data are based on real change; however, tables and figures show both apparent and real change.

During FY 2003, the number of sufficient bridges increased by 384—234 additional sufficient on-system bridges and 150 additional sufficient off-system bridges; this number includes new-location bridges.

Of the non-sufficient bridges in Texas, FY 2003 produced a net improvement of 127 bridges, as shown by the negative numbers in the following table. This improvement encompassed 23 more on-system bridges and 104 more off-system bridges that changed from non-sufficient to sufficient.

Table ES-1. Change in Condition of Non-sufficient Bridges during FY 2003

Condition	Change On-system	Change Off-system	Total Change
Structurally Deficient	– 43	– 84	– 127
Functionally Obsolete	+ 40	+ 30	+ 70
Sub-standard for load only	– 20	– 50	– 70
Total Change	– 23	– 104	– 127

Change in the condition of non-sufficient Texas bridges during FY 2003 is shown in the following figure (same as Figure 3-5).

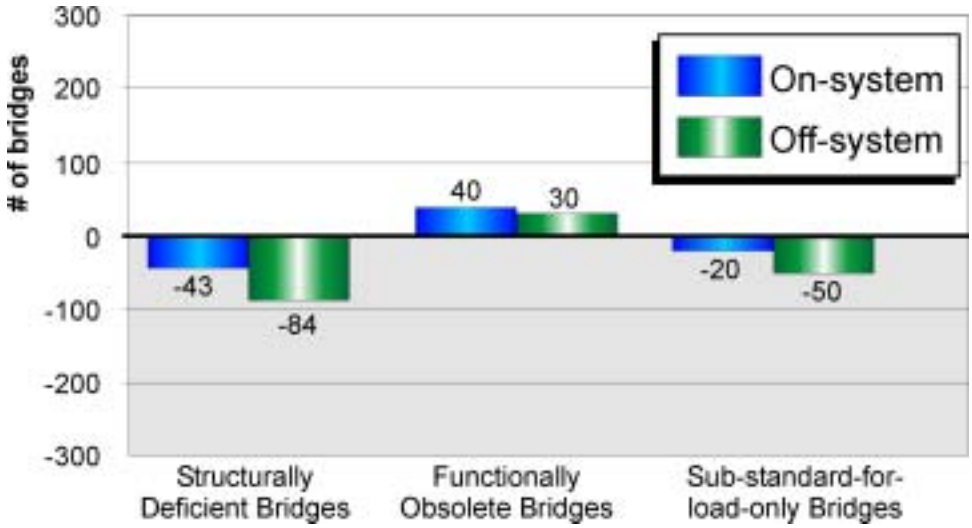


Figure ES-2. Change in Condition of Non-sufficient Bridges during FY 2003

Although the number of sufficient bridges in Texas increased in FY 2003 by 384, new-location bridges accounted for 241 of that number. However, the percentage of sufficient bridges has increased steadily from 69.9% in September 2000 to 70.3% in September 2001 to 70.9% in September 2002 and to 75.1% in September 2003.

This report distinguishes bridges by type, between span-type bridges and bridge-class culverts. Unlike bridge-class culverts, span-type bridges usually have decks and are more complex. As shown in Tables 3-8 and 3-9, of the span-type bridges the number of structurally deficient on-system span-type bridges decreased by 48 from September 2002 to September 2003, and the number of structurally deficient off-system span-type bridges decreased by 82 from September 2002 to September 2003. Nevertheless, in September 2003 most of the structurally deficient span-type bridges were still off-system: 573 on-system and 1,964 off-system. However, as shown in Tables 4-2 and 4-4, most of the structurally deficient span-type bridge deck area was

on-system: 8,264,561 sq. ft. on-system and 3,671,695 sq. ft. off-system. This reflects the fact that on-system bridges tend to be larger than off-system bridges and are correspondingly more expensive to replace or rehabilitate.

During FY 2003, Texas contracted projects to address 169 structurally deficient bridges and 78 functionally obsolete bridges for a total of 247 deficient or obsolete bridges. To achieve the goals to make at least 80% of Texas bridges good or better and to accelerate the upgrade of all structurally deficient on-system bridges, TxDOT and local governments must work effectively to meet challenges:

- 645 structurally deficient on-system bridges and 1,712 additional bridges classified as structurally deficient, functionally obsolete, or sub-standard for load only in September 2003, for a total of 2,357, must be improved. This is an average of 295 structurally deficient on-system and other non-sufficient bridges per year over the next eight years.
- Bridges that will become structurally deficient, functionally obsolete, or sub-standard for load only in the coming years must also be improved. Over 57% of the bridges have been in service for more than 30 years. Increasing traffic volumes, heavier vehicle weights, and an aging infrastructure are increasing the need for additional funds and resources for maintenance, rehabilitation, and replacement of Texas bridges.

The following programs made funds available or facilitated upgrades of non-sufficient bridges:

- Highway Bridge Replacement and Rehabilitation Program (HBRRP)—TxDOT has administered this Federal Highway Administration (FHWA) program since its beginning in 1970. Initial funding participation requirements for both on- and off-system bridges were 80% federal and 20% local; however, in 1995 TxDOT initiated a change in participation requirements for off-system bridges to pay half of the local government's share (80% federal, 10% state, 10% local). This program provided funding for 168 structurally deficient and 55 functionally obsolete bridges that were contracted in FY 2003, for a total of 223 of the 247 deficient or obsolete bridges that were awarded contracts in FY 2003.
- State Infrastructure Bank (SIB)—Effective September 1997, this revolving account in the State Highway Fund allows TxDOT to award loans to local governments to support eligible transportation projects.
- Economically Disadvantaged Counties (EDC) Program—Effective January 1998, this program allows TxDOT to adjust a county's matching funds requirements after evaluating the local government's ability to meet the requirement. TxDOT also allows a county participating in the EDC program to use its adjusted participation amount in lieu of all or part of its 10% cost participation in the Participation-Waived Project/Equivalent-Match Project (PWP/EMP) program.
- PWP/EMP Program—Effective August 2000, revised local participation requirements to allow 100% federal/state funding of a TxDOT-programmed participation-waived project (PWP) in cases where the local government agrees to perform structural improvement work on other equivalent-match-project (EMP) deficient bridges with a dollar amount at least equal to their normal 10% project match. State design standards apply to the PWPs while the EMP design standards are determined by the local governments based on local needs and standards.
- Simplified local government participation—Effective August 2000, when the local government elects to participate in the cost of a TxDOT-programmed bridge, instead of being

responsible for 10% of actual costs, the local government is now responsible for 10% of the estimated project cost at the time the agreement with TxDOT is signed. The local government no longer participates in subsequent overruns in costs of program-eligible project items unless it lets and manages the project.

- Regional Mobility Authorities (RMAs)—Counties are beginning to explore bridge funding through RMAs for toll facilities.

As of September 2003, Texas must upgrade 295 structurally deficient on-system and other non-sufficient bridges each year to reach its goals of at least 80% of Texas bridges in good or better condition and no structurally deficient on-system bridges by September 2011.

TxDOT is adhering to the following plan to achieve its goals and is adjusting it annually after reviewing the effect of the preceding year's work on progress toward the goals:

- Develop and distribute an annual report to identify progress toward achieving the goal.
  Status: This report serves that purpose.
- Use the annual report to adjust the resources each year as needed.
  Status: Data compiled during development of the first issue of this report, *Report on Texas Bridges as of September 2001*, supported development of a new prioritization, currently in early stages of implementation, of bridge work for the 12-month letting schedule:
  Priority 1 – Critically deficient structurally deficient land-locking bridges
  Priority 2 – Remaining critically deficient structurally deficient bridges
  Priority 3 – Structurally deficient land-locking bridges
  Priority 4 – Remaining structurally deficient bridges
  Priority 5 – Functionally obsolete land-locking bridges
  Priority 6 – Remaining functionally obsolete bridges
- Produce completed bridge plans, specifically targeting those structurally deficient on-system bridges that are critically deficient, that will be available to substitute for delayed HBRRP projects.
  Status: TxDOT's Bridge Division and districts continue to work together to target these bridges for plan development.
- Produce completed bridge plans, targeting structurally deficient bridges that will be available to substitute for delayed HBRRP projects.
  Status: TxDOT's Bridge Division, with support from the Bridge Division bridge design consultant pool, continues to work with the districts to develop a backlog of projects to substitute for delayed HBRRP projects.
- Develop a process to substitute HBRRP projects for those that are delayed for letting to construction in order to contract 100 percent of HBRRP program funds on the 12-month HBRRP letting schedule each fiscal year.
  Status: TxDOT's Bridge Division is working with the districts to schedule HBRRP projects in the first eight months of each fiscal year to allow sufficient time to substitute for projects that are delayed to letting.
- Use other categories of funding in addition to HBRRP funds to achieve the goals.
  Status: TxDOT's Bridge Division and districts continue to emphasize using additional categories of funding for bridge replacement and rehabilitation.

Standardize additional bridge elements and make them available on the Internet in order to simplify design, speed construction, and lower costs.

Status: During FY 2003, TxDOT updated existing online standard drawings for interior trestle bents for I-beams. TxDOT also published new online standard drawings for prestressed box beam bridges, prestressed concrete I-beam bridges, cast-in-place concrete slab span bridges, and prestressed concrete slab span bridges. In FY 2004 TxDOT will publish new online standard drawings for the following bridge elements and systems: T77 bridge railing, culverts and drainage, prestressed concrete I-beam bridges, and steel beam bridges.

- Increase the use of cluster contracts that address two or more deficient bridges within a reasonable geographical area. This should lower overall design and construction costs.
  Status: TxDOT's Bridge Division and districts continue to emphasize cluster contracts.
- Use maintenance funds to address on-system bridge problems that result in low condition ratings to prevent non-structurally deficient on-system bridges from becoming structurally deficient.

Status: As shown in Figure 6-1, TxDOT distributed $78.8M for on-system bridge maintenance in FY 2003, compared to $57.2 M in FY 2002 and $57.6 M in FY 2001.

Chapter 1 – Overview

Introduction. In August 2001, Texas Transportation Commissioner John W. Johnson established the TxDOT goal[1] that within ten years at least 80% of the bridges in Texas would be in good or better condition. Structurally deficient, functionally obsolete, and sub-standard-for-load-only bridges need improvement and, therefore, are not in good or better condition. Classification of bridges by these conditions, which are described in Chapter 3, is based on regularly scheduled bridge safety inspections.

As part of the September 2001 evaluation of Texas bridges, TxDOT adopted an additional goal to accelerate the upgrade of all structurally deficient on-system bridges, giving highest priority to critically deficient bridges, in an effort to eliminate more quickly all structurally deficient on-system bridges.

The TxDOT Bridge Division tracks progress toward both goals in an annual report on the condition of publicly owned vehicular bridges:

- *Report on Texas Bridges as of September 2001*—Baseline information showing the state of the bridges at the end of FY 2001.
- *Report on Texas Bridges as of September 2002*—Information showing the state of the bridges at the end of FY 2002 and the changes since the previous year.
- *Report on Texas Bridges as of September 2003*—This report.

By documenting its efforts in the preceding year, this report also illustrates TxDOT strategies to plan, build, maintain, maximize, and manage key state resources to ensure that Texas bridges meet objectives from the TxDOT Strategic Plan 2003-2007:

- Reliable mobility
- Improved safety
- Responsible system preservation
- Streamlined project delivery
- Economic vitality

Purpose. This report describes the condition of all publicly owned vehicular bridges in Texas in FY 2003. It provides the following information:

- Chapter 2—Characteristics of Texas bridges, categorized by location on or off the state highway system, by age, by type, and by main-span material.
- Chapters 3 and 4—Condition of the bridges and changes from the preceding year.
- Chapters 5 and 6—Status of funding and letting of bridge projects at the end of FY 2003.
- Chapter 7—Concerns for the future of Texas bridges based on their attributes and conditions.
- Chapter 8—Summaries of progress made toward TxDOT's bridge goals and of innovations and best practices in the preceding year.

Data Source. TxDOT maintains its inspection information on each publicly owned vehicular bridge in the electronic Bridge Inspection Database. This database is a repository of information

[1] Texas Transportation Commission's Transportation Working Group, "Texas Transportation Partnerships: Connecting You to the World," August 2001.

on the characteristics of the bridges and their conditions, and it provides the source of data for descriptions of bridges in this annual report. The database identifies each bridge by its National Bridge Inventory (NBI) number and is updated continually based on safety inspections.

TxDOT uses the Unified Transportation Program (UTP), a ten-year planning document, to guide and control project development. It identifies Texas projects scheduled to be let for construction bids and is typically updated and re-issued yearly. The UTP provides the source of data for funding information in this annual report.

TxDOT uses an automated information system—the Design and Construction Information System (DCIS)—for planning, programming, and developing projects. DCIS tracks information by work descriptions, funding requirements, and dates for proposed activities. DCIS provides the source of information on letting for construction bids of the projects described in this annual report.

These databases provide a wealth of information about Texas bridges. In addition, TxDOT continually evaluates bridge information needs and is currently developing new ways to collect and retrieve data.

Chapter 2 – Characteristics of Texas Bridges

Terms. Distinctive characteristics of publicly owned vehicular bridges include the following:

- *On-system or off-system*: On-system bridges are located on the designated state highway system, are administered by TxDOT, and are typically funded with a combination of federal and state or state-only funds. Off-system bridges are not part of the designated state highway system and are under the direct jurisdiction of the local government such as a county, city, other political subdivision of the state, or special district with authority to finance a highway improvement project. This report classifies bridges by their location on- or off-system.
- *Age*: This report classifies bridges by age according to significant historic changes in design criteria governing widths and live loads. Live loads are the moving weights placed on a bridge, not including the weight of the structure itself. In the few cases where accumulated data for a structure does not identify age, this report categorizes the age as "Not Classified."
- *Type*: This report distinguishes between span-type bridges and bridge-class culverts. A *span-type bridge* is a structure erected over a depression or an obstruction (such as water, a highway, or a railway), having a roadway for carrying traffic, and having an opening measured along the centerline of the roadway of more than 20 feet. A *bridge-class culvert* is a structure under the roadway, usually for drainage, with a clear opening of 20 feet or more measured along the centerline of the roadway or between extreme ends of the openings for multiple boxes or multiple pipes that are 60 inches or more in diameter. Bridge-class culverts are usually covered with embankment and are composed of structural material around their entire perimeter. Because of their simplicity of construction, bridge-class culverts are generally more durable than span-type bridges.
- *Main-span material*: This report categorizes bridges by main-span material: reinforced concrete, prestressed concrete, structural steel, and timber. For the few cases where inspection reports for a structure have not identified main-span material, this report categorizes the main-span material as "Other."

On- and Off-system Bridges. Texas has approximately 40% more bridges than any other state. The following figure shows the number of on- and off-system bridges in Texas.

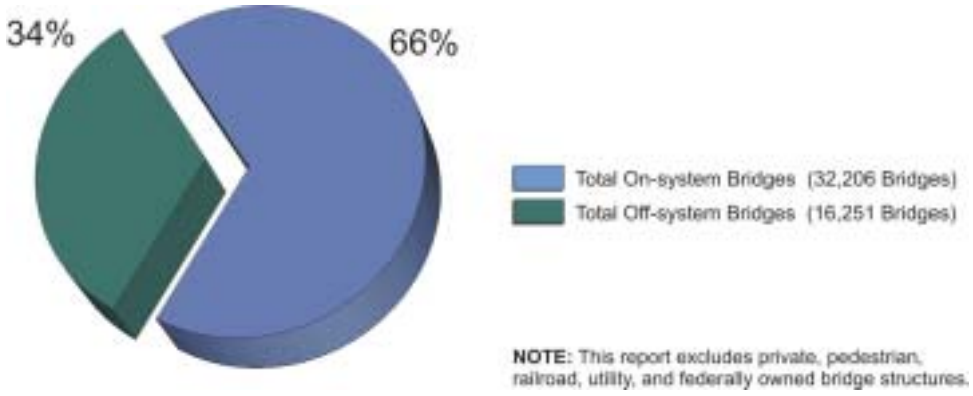


Figure 2-1. Count of On- and Off-system Texas Bridges (48,457 Total)

In September 2003, Texas had 32,206 on-system bridges and 16,251 off-system bridges, a total of 48,457 publicly owned vehicular bridges, 241 bridges more than in September 2002, 373 more bridges than in September 2001, and 669 more bridges than in September 2000. As shown in the following table, most of the bridges added during FY 2003—196 of them—are on-system bridges.

Table 2-1. Count of On- and Off-system Bridges

	On-system	Off-system	Total
Bridges in Sept. 2003	32,206	16,251	**48,457**
Bridges in Sept. 2002	32,010	16,206	**48,216**
Bridges in Sept. 2001	31,933	16,151	**48,084**
Bridges in Sept. 2000	31,678	16,110	**47,788**
Change during FY 2003	+196	+45	**+241**
Change during FY 2002	+77	+55	**+132**
Change during FY 2001	+255	+41	**+296**

The following figure shows numbers of bridges added to the Texas bridge inventory during FY 2001, FY 2002, and FY 2003.

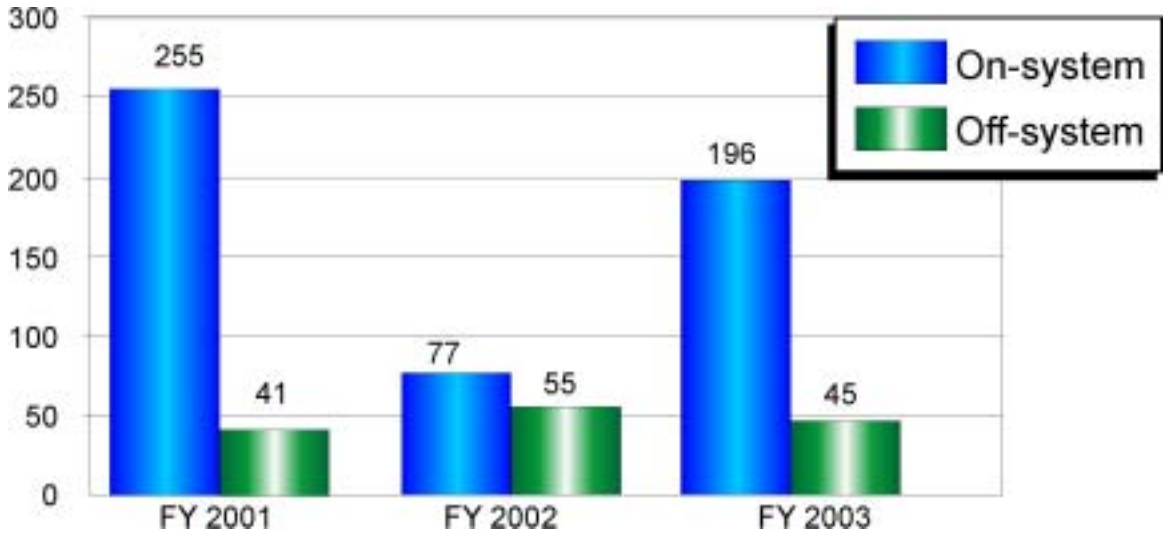


Figure 2-2. On- and Off-system Bridges Added to the Bridge Inventory

The following figure shows the number of on-system bridges in TxDOT districts.

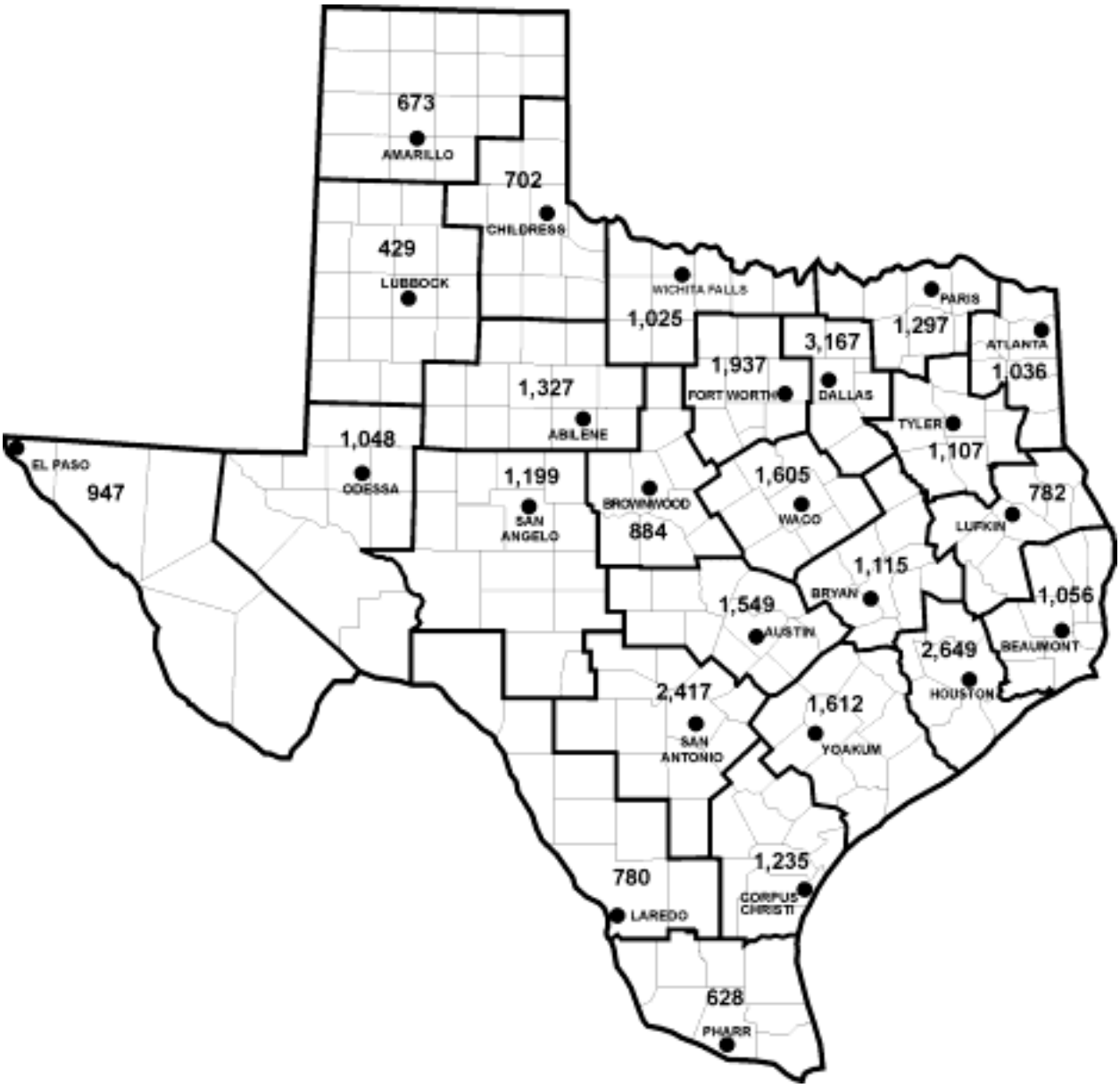


Figure 2-3. Count of On-system Bridges by District (32,206 Total)

Off-system bridges are under the jurisdiction of county, city, or other local governments. See Appendix C for a map of Texas counties by district and an alphabetical listing by county.

The following figure shows the number of off-system bridges in TxDOT districts.

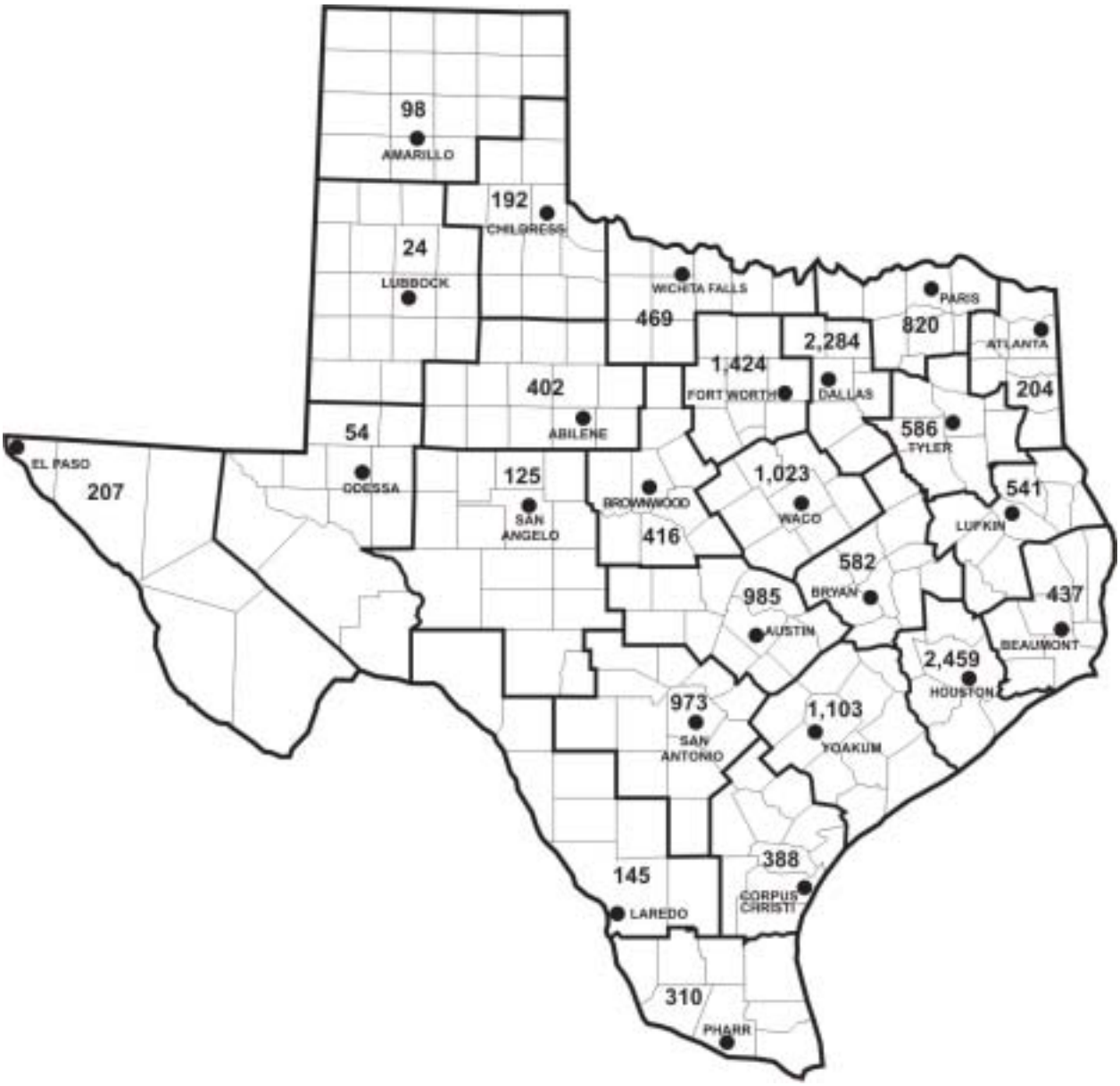


Figure 2-4. Count of Off-system Bridges by District (16,251 Total)

The following figure shows the number of off-system bridges in Texas counties.

Figure 2-5. Count of Off-system Bridges by County (16,251 Total)

Age. Correlation between the age of bridges and their need for special maintenance predicts the need for resources to support bridge replacement and rehabilitation. In addition, on-system Texas bridges built after 1900 can be classified by significant changes in the design criteria that governed their construction:

- Built before 1950—Bridges generally designed for less than the current state legal load. Many of these bridges are load-posted.

- Built between 1950 and 1970—Bridges generally required to accommodate HS20[2] or higher design live loads but not required to be at least as wide as their approach roadways. (Required bridge load capacity is described in detail in the TxDOT online *Bridge Inspection Manual*.) A number of these bridges are too narrow to meet current requirements.
- Built after 1970—Bridges generally required to accommodate HS20 or above design live load and to be at least as wide as their approach roadways.

Between 1950 and 1970, many new-location bridges were built as the interstate and state highway system expanded. The number of on-system bridges built during this time was more than triple the number of off-system bridges built.

In FY 2003, 196 newly constructed on-system bridges and 45 newly constructed off-system bridges were added to the Texas inventory. In general, however, the number of off-system bridges has increased at a much faster rate than before 1970. The on-system transportation infrastructure is well established in contrast to the many new off-system roads and bridges in the increasing number of new subdivisions in urban areas across the state.

The following table and figures show bridges by age groupings.

Table 2-2. Age of Bridges in FY 2003

Age	On-system	Off-system	Total
Built before 1950	6,979	2,954	9,933
Built 1950-1970	14,130	3,943	18,073
Built after 1970	11,097	9,354	20,451
Total	**32,206**	**16,251**	**48,457**

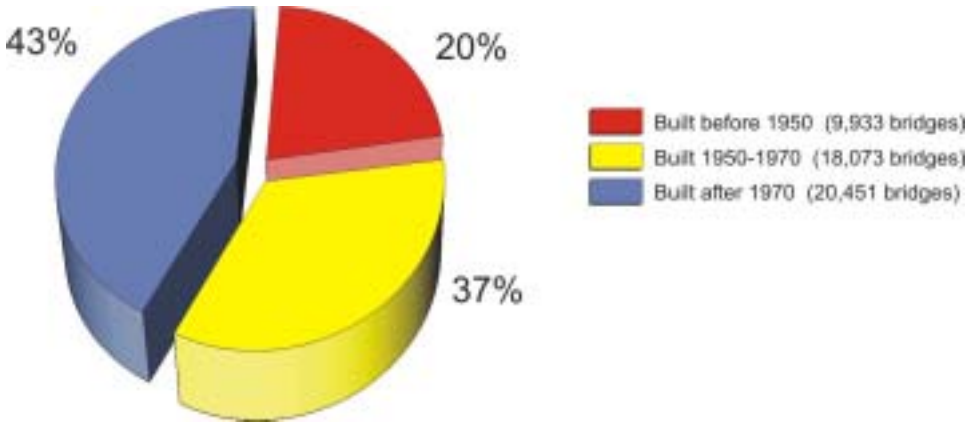


Figure 2-6. Age of On- and Off-system Texas Bridges

Over 57% of Texas bridges have been in service for more than 30 years. The average age of all on-system bridges is 39 years, and the average age of all off-system bridges is 32 years. The

[2] HS20 is the minimum design load recommended by the American Association of State Highway and Transportation Officials (AASHTO) for bridges on interstate highways. This loading is based on a hypothetical vehicle with one 8,000-lb. axle and two 32,000-lb. axles.

median age of all on-system bridges is 39 years, and the median age of all off-system bridges is 26 years.

The average age of on-system span-type bridges is 36 years, and the average age of off-system span-type bridges is 33 years. The median age of on-system span-type bridges is 36 years, and the median age of off-system span-type bridges is 28 years.

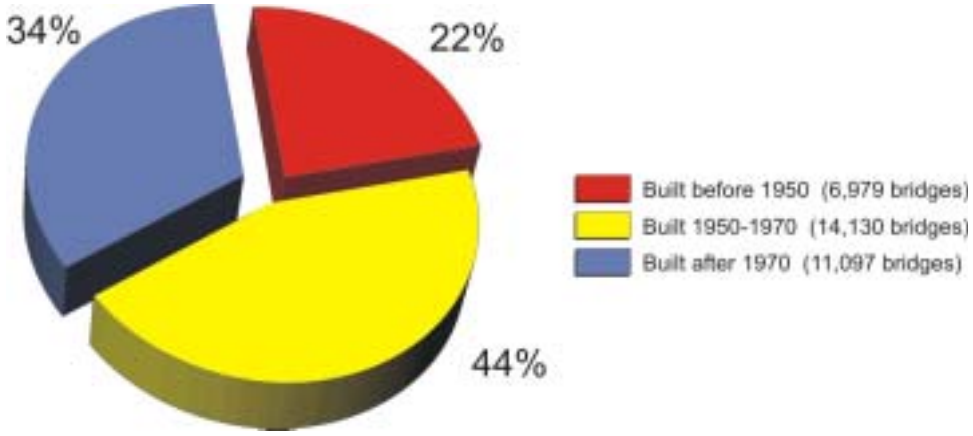


Figure 2-7. Age of On-system Bridges

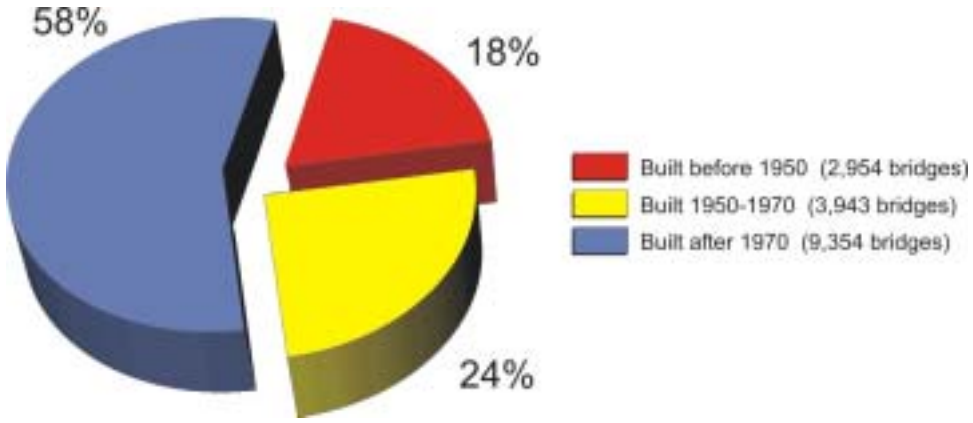


Figure 2-8. Age of Off-system Bridges

In September 2003, 34.5% of on-system bridges (up from 33.3% in September 2002) and 57.6% of off-system bridges (up from 55.7% in September 2002) had been built after 1970. The following table shows change in the age of Texas bridges during FY 2003.

Table 2-3. Change in Age of Bridges from September 2002 to September 2003

Age	As of Sept. 2002	As of Sept. 2003	Change
On-system Bridges			
▪ Built before 1950	7,030	6,979	–51
▪ Built 1950-1970	14,294	14,130	–164
▪ Built after 1970	10,668	11,097	+429
▪ Not classified	18	0	–18
Off-system Bridges			
▪ Built before 1950	3,103	2,954	–149
▪ Built 1950-1970	4,071	3,943	–128
▪ Built after 1970	9,027	9,354	+327
▪ Not classified	5	0	–5

Type. The following table shows the number of span-type bridges and bridge-class culverts in Texas. Nearly 36% of Texas bridges are bridge-class culverts: 41% of on-system bridges and 26% of off-system bridges.

Table 2-4. Type of Bridges in FY 2003

Type	On-system	Off-system	Total
Bridges (span-type):	**19,099**	**11,955**	**31,054**
▪ Built before 1950	2,883	2,281	
▪ Built 1950-1970	8,161	2,841	
▪ Built after 1970	8,055	6,833	
▪ Not classified	0	0	
Culverts (bridge-class):	**13,107**	**4,296**	**17,403**
▪ Built before 1950	4,096	673	
▪ Built 1950-1970	5,969	1,102	
▪ Built after 1970	3,042	2,521	
▪ Not classified	0	0	
Total	**32,206**	**16,251**	**48,457**

Main-span Superstructure Material. The following table shows Texas bridges by type, age, and main-span material.

Table 2-5. Main-span Material for Bridges in FY 2003

Primary Material	On-system		Off-system		Total
	Bridge (Span-type)	Culvert (Bridge-class)*	Bridge (Span-type)	Culvert (Bridge-class)*	
Reinforced concrete:	**8,118**	**12,994**	**3,012**	**4,057**	**28,181**
▪ Built before 1950	2,073	4,043	705	587	
▪ Built 1950-1970	4,580	5,961	1,080	1,079	
▪ Built after 1970	1,465	2,990	1,227	2,391	
Prestressed concrete:	**7,868**	**NA**	**2,830**	**NA**	**10,698**
▪ Built before 1950	58	NA	24	NA	
▪ Built 1950-1970	1,814	NA	344	NA	
▪ Built after 1970	5,996	NA	2,462	NA	
Steel:	**3,029**	**34**	**4,001**	**143**	**7,207**
▪ Built before 1950	696	5	884	13	
▪ Built 1950-1970	1,746	2	849	19	
▪ Built after 1970	587	27	2,268	111	
Timber:	**22**	**0**	**1,668**	**0**	**1,690**
▪ Built before 1950	14	0	288	0	
▪ Built 1950-1970	8	0	522	0	
▪ Built after 1970	0	0	858	0	
Other:	**62**	**79**	**444**	**96**	**681**
▪ Built before 1950	42	48	380	73	
▪ Built 1950-1970	13	6	46	4	
▪ Built after 1970	7	25	18	19	
Total	**19,099**	**13,107**	**11,955**	**4,296**	**48,457**

***** Numbers for reinforced concrete bridge-class culverts include both reinforced and prestressed concrete.

Most on-system span-type bridges built between 1950 and 1970 have reinforced concrete main spans. Very few on-system span-type bridges have timber superstructures. Off-system span-type bridges built during the same period are likely to have either structural steel or reinforced concrete main spans. However, a number of off-system span-type bridges from all three age groups—nearly 14%—use timber. Timber and steel are popular with off-system bridge owners because of the following reasons:

- Steel and timber bridges are easier to construct in pieces and usually do not require specialized equipment to haul and erect.
- Recycled steel and timber are often incorporated into off-system bridges, reducing the initial cost of the bridge.
- Recycled railroad flat cars and barrels from railroad tank cars have been available for use in off-system bridges. Their high load capacity and relatively low cost make them attractive to local governments as bridge material. However, these structures have inherent geometric deficiencies, approved traffic railing is difficult if not impossible to install, and their use can limit hydraulic capacity.

During FY 2003, the number of on-system timber bridges did not change, and the number of off-system timber bridges decreased by 82.

Most on-system bridges built since 1970 have prestressed concrete main spans. More prestressed concrete and structural steel main span off-system bridges were built during this period than other main-span types. Although the proportion of timber bridges is decreasing, a number of off-system bridges built by local governments since 1970 are timber.

On-system Span-type Timber Bridges. Timber is sometimes used for bridge main spans, approach spans, and piling; however, it is not as durable as other bridge materials and it can deteriorate at a faster rate. In addition, piling length is restricted for timber substructures. TxDOT has not built on-system timber substructure bridges for more than 50 years, and as a result, on-system timber substructure bridges are reaching the end of their service life. For these reasons, TxDOT has begun targeting on-system bridges with timber substructures for replacement by bridges with more durable substructure materials.

In September 2001, Texas had a total of 279 on-system span-type bridges with timber main spans, approach spans, and/or piling. In September 2002, Texas had 11 fewer, and in September 2003, Texas had another 34 fewer as shown in the following table.

Table 2-6. On-system Span-type Timber Bridges by District

District	FY 2001 Bridge Count	FY 2002 Bridge Count	FY 2003 Bridge Count*
Abilene	0	0	0
Amarillo	21	20	18
Atlanta	40	37	28
Austin	8	8	8
Beaumont	18	18	17
Brownwood	1	1	0
Bryan	11	11	7
Childress	4	4	3
Corpus Christi	32	32	35
Dallas	34	29	29
El Paso	0	0	0
Fort Worth	7	7	1
Houston	5	5	5
Laredo	1	1	1
Lubbock	2	2	2
Lufkin	50	50	44
Odessa	1	1	1
Paris	7	6	5
Pharr	3	3	3
San Angelo	0	0	0
San Antonio	4	4	2
Tyler	2	2	0
Waco	5	5	4
Wichita Falls	1	0	0
Yoakum	22	22	20
Total	**279**	**268**	**234**

* The FY 2003 count of on-system span-type timber bridges includes timber bent caps.

Chapter 3 – Condition of Texas Bridges

Terms. This report characterizes the condition of bridges as follows:

- *Sufficient structure:* A sufficient structure meets current federal and Texas requirements; it is not structurally deficient, functionally obsolete, or sub-standard for load only. Desirable change in sufficient structures from year to year is reflected by positive numbers, showing an increase in sufficient structures.
- *Non-sufficient structure:* A non-sufficient structure is structurally deficient, functionally obsolete, or sub-standard for load only. Desirable change in non-sufficient structures from year to year is reflected by negative numbers, showing a decrease in non-sufficient structures.
- *Structurally deficient structure:* A bridge or bridge-class culvert is classified by the Federal Highway Administration (FHWA) as structurally deficient if it meets any of the following criteria:
  - It has an extreme restriction on its load-carrying capacity.
  - It has deterioration severe enough to reduce its load-carrying capacity beneath its original as-built capacity.
  - It is closed.
  - It is frequently over-topped during flooding, creating severe traffic delays.
- *Critically deficient structure:* A bridge is classified by TxDOT as critically deficient if it is structurally deficient and in most need of attention.
- *Functionally obsolete structure:* A bridge is classified by the FHWA as functionally obsolete if it fails to meet its design criteria in any one of the following areas:
  - Deck geometry
  - Load-carrying capacity
  - Vertical or horizontal clearances
  - Approach roadway alignment

  In this report, structures that are both functionally obsolete and structurally deficient are counted only as structurally deficient.
- *Sub-standard-for-load-only structure:* A bridge is considered sub-standard for load only if it is not classified as structurally deficient or functionally obsolete but has a load capacity less than the maximum load permitted by state law. It has not deteriorated or has not deteriorated severely enough to reduce its load capacity beneath its original as-built capacity, but its original as-built capacity was not designed to carry current legal loads. A sub-standard-for-load-only structure is load-posted or recommended for load posting.
- *Load-posted bridge:* A bridge that is load-posted has a safe load capacity less than the state legal load, and its load capacity is communicated by signs at the bridge site. (Note. Certain vehicles, identified in Chapter 622 of the Texas Transportation Code, that exceed posted load capacity can legally use load-posted bridges.)
- *Land-locking bridges:* This report classifies a bridge as land-locking if it restricts traffic into an area because of load limitations or closures. These bridges are load-posted.

Categories of bridge conditions overlap. For example, a bridge that is structurally deficient is not necessarily load-posted, and a bridge that is load-posted is not necessarily classified as structurally deficient. The following figure shows conceptual overlap of the categories.

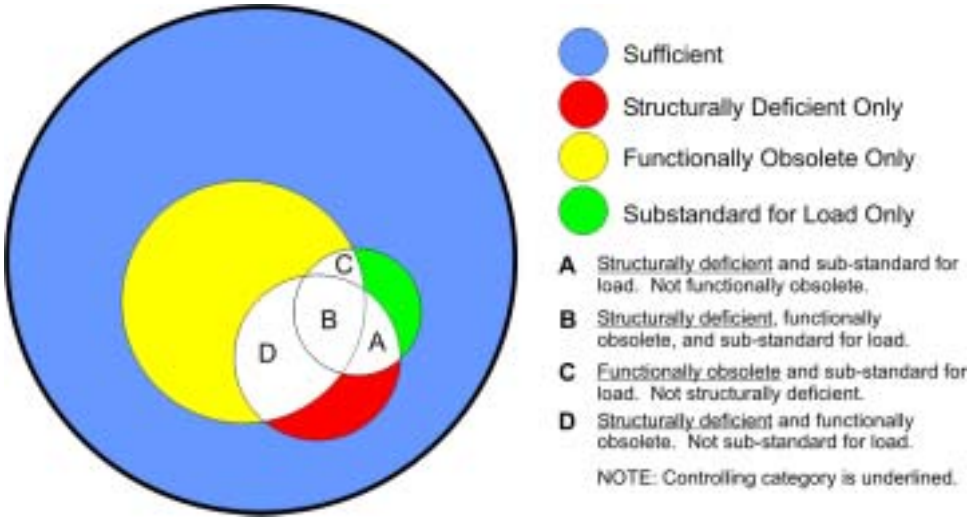


Figure 3-1. Categories of Bridge Conditions

This report identifies structurally deficient bridges by number of bridges and by square footage of bridge deck area. Square footage of deck area is provided because bridges exist in a variety of sizes and bridge replacement cost is proportional to deck area.

Note on the FY 2003 Data Set. A programming change to routines retrieving data from the Bridge Inspection Database adjusted numbers of bridges identified by condition. The programming change was implemented at the end of FY 2002, and it corrected a discrepancy caused by calculation of the data collected in English measurements but delivered to the Federal Highway Administration (FHWA) in a required metric format. The adjustment resulted in two sets of FY 2003 numbers showing changes in bridge condition: apparent change (using pre-adjustment data) and real change (using post-adjustment data), and the effect is most noticeable as reductions of numbers of bridges identified as structurally deficient or functionally obsolete. However, some bridges that were incorrectly identified as structurally deficient or functionally obsolete and were also sub-standard for load (that is, their controlling classification was structurally deficient or functionally obsolete) now show up as sub-standard for load only, increasing those numbers. In this report, comparisons of year-over-year bridge data are based on real change; however, tables and figures show both apparent and real change.

Bridge Safety Inspections. TxDOT inspects on- and off-system bridges on a periodic schedule, collecting information about bridge conditions and recording it in a state-maintained database. Regularly scheduled TxDOT safety inspections include the following (the safety inspection process is described in detail in the TxDOT online *Bridge Inspection Manual*):

- Routine inspections—At least once every two years a routine inspection is conducted on each Texas publicly owned vehicular on- and off-system span-type bridge more than 20 feet long and on most bridge-class culverts. (A bridge-class culvert that is less than 50 years old, experiences limited average daily traffic, and is in good condition may qualify for a 4-year

routine inspection cycle.) In routine inspections, inspectors record evidence and degree of deterioration and scour, among other characteristics of bridge condition.

- Fracture-critical inspections—In addition to the routine inspection, at least once every five years an in-depth inspection is conducted of fracture-critical members (steel, tensioned bridge components whose failure will result in the collapse of the bridge) on all Texas on- and off-system publicly owned vehicular bridges.
- Underwater inspections—In addition to the routine inspection, at least once every five years an in-depth underwater inspection is conducted on each on- and off-system publicly owned vehicular bridge and bridge-class culvert that has substructure elements underwater year-round.

The federally mandated bridge safety inspection program is administered by the Bridge Division.

TxDOT conducted a total of 23,089 bridge safety inspections in FY 2001, 23,509 bridge safety inspections in FY 2002, and 25,527 bridge safety inspections in FY 2003. The following table shows on- and off-system bridge safety inspections conducted in FY 2003 by TxDOT district.

Table 3-1. Bridge Safety Inspections Conducted in FY 2003, by District

District	On-system Bridges			Off-system Bridges		
	Routine Inspection	Fracture-Critical	Underwater	Routine Inspection	Fracture-Critical	Underwater
Abilene	1,337	6	0	21	1	0
Amarillo	438	0	0	51	0	0
Atlanta	424	1	1	1	0	0
Austin	910	11	1	4	0	0
Beaumont	920	1	1	66	0	6
Brownwood	112	2	1	412	37	0
Bryan	1,127	1	1	25	0	3
Childress	328	3	0	184	4	0
Corpus Christi	0	0	0	389	1	0
Dallas	31	8	4	1,583	16	1
El Paso	972	0	0	211	0	0
Fort Worth	1,457	10	1	329	31	0
Houston	2,730	47	53	4	1	25
Laredo	368	1	0	141	0	0
Lubbock	0	0	0	0	0	0
Lufkin	17	1	8	539	1	1
Odessa	221	0	0	0	0	0
Paris	1,301	0	0	37	0	1
Pharr	500	7	18	305	0	11
San Angelo	323	5	11	124	5	7
San Antonio	2,442	4	0	0	1	1
Tyler	1,127	0	5	28	0	2
Waco	1,628	0	2	83	1	1
Wichita Falls	94	0	0	449	2	0
Yoakum	1,155	4	14	183	1	2
Total	19,962	112	121	5,169	102	61

Structurally Deficient Bridges. In September 2003, a total of 2,678 of the state's 48,457 bridges were structurally deficient: 573 on-system span-type bridges, 72 on-system culverts, 1,964 off-system span-type bridges, and 69 off-system culverts as shown in Figure 3-2 and Table 3-9. Most of the structurally deficient bridges were off-system span-type bridges.

Overall, the total number of structurally deficient on-system bridges was 758 in September 2000 (680 span-type bridges and 78 bridge-class culverts), 763 in September 2001 (685 span-type bridges and 78 bridge-class culverts), and 693 in September 2002 (622 span-type bridges and 71 bridge-class culverts). With the adjusted FY 2003 data set, the total number of structurally deficient on-system bridges was 645 in September 2003 (573 span-type bridges and 72 bridge-class culverts). The number of structurally deficient on-system bridges increased by 5 during FY 2001 (all on-system span-type bridges), but it decreased by 70 during FY 2002 (63 span-type bridges and 7 bridge-class culverts), and it decreased by 43 in FY 2003 (48 fewer span-type bridges but 5 additional structurally deficient bridge-class culverts).

The total number of structurally deficient off-system bridges was 2,636 in September 2000 (2,566 span-type bridges and 70 bridge-class culverts), 2,433 in September 2001 (2,371 span-type bridges and 62 bridge-class culverts), 2,235 in September 2002 (2,161 span-type bridges and 74 bridge-class culverts), and 2,033 in September 2003 (1,964 span-type bridges and 69 bridge-class culverts). The number of structurally deficient off-system bridges decreased by 203 during FY 2001 (195 span-type bridges and 8 bridge-class culverts), it decreased by 198 during FY 2002 (210 fewer span-type bridges but 12 additional bridge-class culverts), and it decreased by 84 during FY 2003 (82 fewer span-type bridges and 2 fewer bridge-class culverts).

Functionally Obsolete Bridges. In September 2003, a total of 7,477 of the state's 48,457 bridges were functionally obsolete: 3,137 on-system span-type bridges, 564 on-system culverts, 3,277 off-system span-type bridges, and 499 off-system culverts as shown in Figure 3-2 and Table 3-9. Most of the functionally obsolete bridges were off-system span-type bridges, followed closely by on-system span-type bridges.

Overall, the total number of functionally obsolete on-system bridges was 4,731 in September 2000 (4,153 span-type bridges and 578 bridge-class culverts), 4,751 in September 2001 (4,183 span-type bridges and 568 bridge-class culverts), and 4,945 in September 2002 (4,317 span-type bridges and 628 bridge-class culverts). With the adjusted FY 2003 data set, the total number of functionally obsolete on-system bridges was 3,701 in September 2003 (3,137 span-type bridges and 564 bridge-class culverts). The number of functionally obsolete on-system bridges increased by 20 during FY 2001 (30 more span-type bridges but 10 fewer bridge-class culverts), it increased by 194 during FY 2002 (134 span-type bridges and 60 bridge-class culverts), and it increased by 40 in FY 2003 (83 more span-type bridges and 43 fewer bridge-class culverts).

The total number of functionally obsolete off-system bridges was 4,314 in September 2000 (3,753 span-type bridges and 561 bridge-class culverts), 4,455 in September 2001 (3,844 span-type bridges and 611 bridge-class culverts), 4,447 in September 2002 (3,883 span-type bridges and 564 bridge-class culverts), and 3,776 in September 2003 (3,277 span-type bridges and 499 bridge-class culverts). The number of functionally obsolete off-system bridges increased by 141

during FY 2001 (91 span-type bridges and 50 bridge-class culverts), but it decreased by 8 during FY 2002 (39 more span-type bridges but 47 fewer bridge-class culverts), and it increased by 30 during FY 2003 (38 more span-type bridges and 8 fewer bridge-class culverts).

Sub-standard for Load Only (Load-posted). In September 2003, a total of 1,835 of Texas' 48,457 bridges were classified sub-standard for load only: 174 on-system span-type bridges, 10 on-system culverts, 1,580 off-system span-type bridges, and 71 off-system culverts, as shown in Figure 3-2 and Table 3-9. Most of the sub-standard-for-load-only bridges were off-system span-type bridges.

Overall, the total number of sub-standard-for-load-only on-system bridges was 327 in September 2000 (293 span-type bridges and 34 bridge-class culverts), 272 in September 2001 (237 span-type bridges and 35 bridge-class culverts), and 203 in September 2002 (190 span-type bridges and 13 bridge-class culverts). With the adjusted FY 2003 data set, the total number of sub-standard-for-load-only on-system bridges was 184 in September 2003 (174 span-type bridges and 10 bridge-class culverts). The number of sub-standard-for-load-only on-system bridges decreased by 55 during FY 2001 (56 fewer span-type bridges but 1 more bridge-class culvert), it decreased by 69 during FY 2002 (47 span-type bridges and 22 bridge-class culverts), and it decreased by 20 during FY 2003 (17 fewer span-type bridges and 3 fewer bridge-class culverts).

The total number of sub-standard-for-load-only off-system bridges was 1,489 in September 2000 (1,438 span-type bridges and 51 bridge-class culverts), 1,518 in September 2001 (1,465 span-type bridges and 53 bridge-class culverts), 1,451 in September 2002 (1,400 span-type bridges and 51 bridge-class culverts), and 1,651 in September 2003 (1,580 span-type bridges and 71 bridge-class culverts). The number of sub-standard-for-load-only off-system bridges increased by 29 during FY 2001 (27 span-type bridges and 2 bridge-class culverts), but it decreased by 67 during FY 2002 (65 fewer span-type bridges and 2 fewer bridge-class culverts). It decreased by 50 during FY 2003 (69 fewer span-type bridges and 19 additional bridge-class culverts).

Condition of Bridges. The following figures show the condition of Texas bridges as of September 2003.

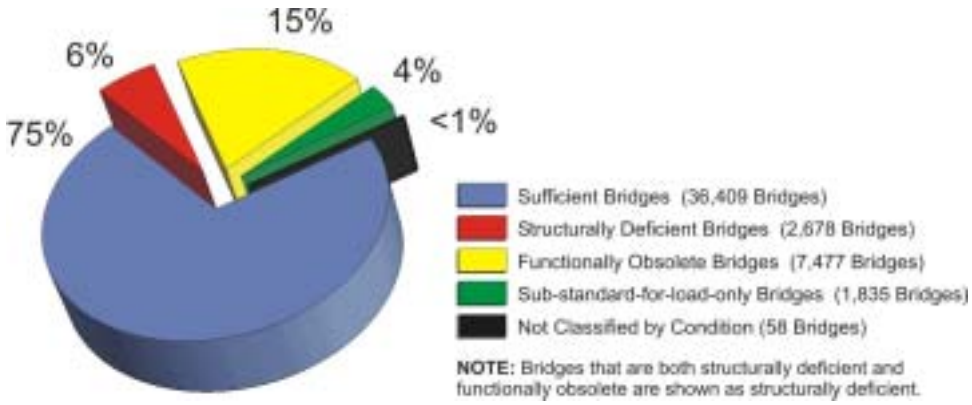


Figure 3-2. Condition of Texas Bridges by Count in September 2003 (48,457 Total)

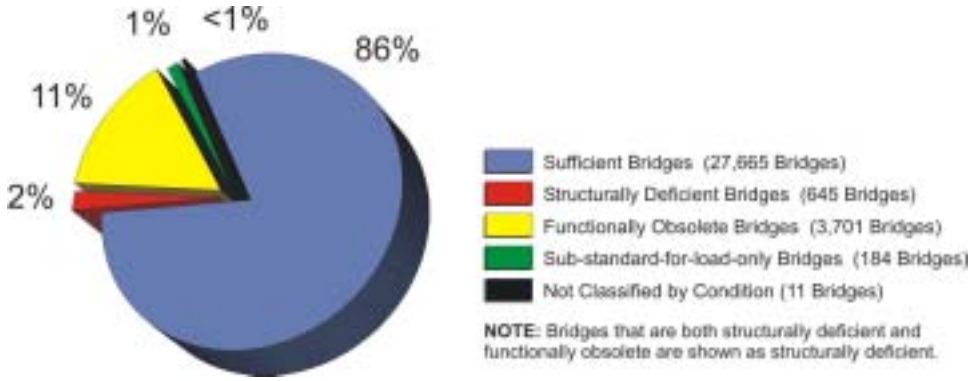


Figure 3-3. Condition of On-system Bridges by Count in September 2003 (32,206 Total)

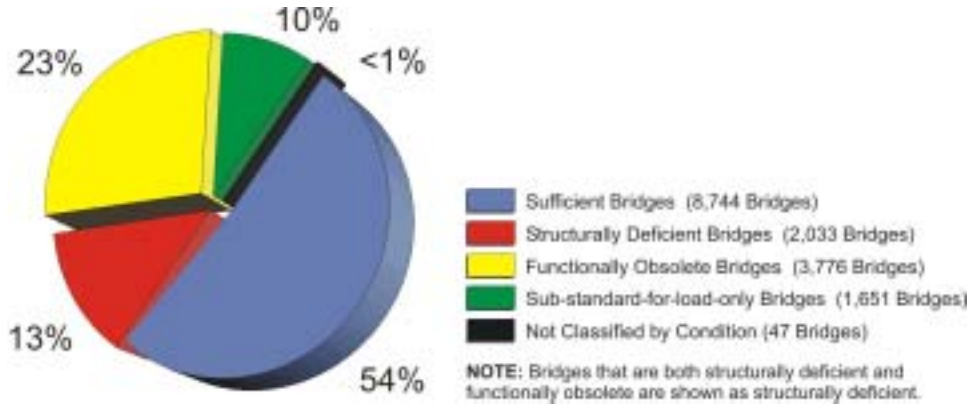


Figure 3-4. Condition of Off-system Bridges by Count in September 2003 (16,251 Total)

The following table shows the condition of on-system Texas span-type bridges in September 2002 and September 2003.

Table 3-2. Condition of On-system Span-type Bridges by Count

Main-span Material	Total Bridges		Sufficient Bridges		Non-sufficient Bridges						Not Classified by Condition	
					Structurally Deficient		Functionally Obsolete		Sub-standard-for-Load-Only			
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
Reinforced concrete:	**8,219**	**8,118**	**6,091**	**6,170**	**352**	**332**	**1,627**	**1,482**	**146**	**133**	**3**	**1**
▪ Built before 1950	2,106	2,073	1,552	1,557	129	125	385	356	39	35	1	0
▪ Built 1950-1970	4,647	4,580	3,170	3,230	222	206	1,147	1,046	106	97	2	1
▪ Built after 1970	1,463	1,465	1,366	1,383	1	1	95	80	1	1	0	0
▪ Not classified	3	0	3	0	0	0	0	0	0	0	0	0
Prestressed concrete:	**7,597**	**7,868**	**5,960**	**7,010**	**50**	**43**	**1,579**	**810**	**2**	**2**	**6**	**3**
▪ Built before 1950	61	58	55	54	1	0	5	4	0	0	0	0
▪ Built 1950-1970	1,835	1,814	1,182	1,441	31	27	619	344	2	2	1	0
▪ Built after 1970	5,690	5,996	4,714	5,515	18	16	953	462	0	0	5	3
▪ Not classified	11	0	9	0	0	0	2	0	0	0	0	0
Steel:	**3,041**	**3,029**	**1,718**	**1,995**	**202**	**183**	**1,076**	**813**	**38**	**35**	**7**	**3**
▪ Built before 1950	709	696	419	425	81	79	181	169	23	20	5	3
▪ Built 1950-1970	1,780	1,746	946	1,110	121	104	697	517	15	15	1	0
▪ Built after 1970	551	587	352	460	0	0	198	127	0	0	1	0
▪ Not classified	1	0	1	0	0	0	0	0	0	0	0	0
Timber:	**22**	**22**	**8**	**7**	**4**	**5**	**7**	**7**	**3**	**3**	**0**	**0**
▪ Built before 1950	14	14	4	3	3	4	4	4	3	3	0	0
▪ Built 1950-1970	8	8	4	4	1	1	3	3	0	0	0	0
Other:	**67**	**62**	**22**	**25**	**14**	**10**	**28**	**25**	**1**	**1**	**2**	**1**
▪ Built before 1950	43	42	11	12	8	7	23	21	1	1	0	1
▪ Built 1950-1970	15	13	4	6	6	3	5	4	0	0	0	0
▪ Built after 1970	9	7	7	7	0	0	0	0	0	0	2	0
Total	**18,946**	**19,099**	**13,799**	**15,207**	**622**	**573**	**4,317**	**3,137**	**190**	**174**	**18**	**8**

The following table shows the condition of on-system Texas bridge-class culverts in September 2002 and September 2003.

Table 3-3. Condition of On-System Bridge-class Culverts by Count

Main-span Material	Total Culverts		Sufficient Culverts		Non-sufficient Culverts						Not Classified by Condition	
					Structurally Deficient		Functionally Obsolete		Sub-standard-for-Load-Only			
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
Concrete*:	**12,969**	**12,994**	**12,256**	**12,356**	**68**	**69**	**625**	**557**	**12**	**9**	**8**	**3**
▪ Built before 1950	4,051	4,043	3,817	3,832	28	32	197	173	9	6	0	0
▪ Built 1950-1970	6,001	5,961	5,631	5,623	29	29	332	304	3	3	6	2
▪ Built after 1970	2,914	2,990	2,805	2,901	11	8	96	80	0	0	2	1
▪ Not classified	3	0	3	0	0	0	0	0	0	0	0	0
Steel:	**34**	**34**	**31**	**29**	**0**	**1**	**3**	**4**	**0**	**0**	**0**	**0**
• Built before 1950	5	5	4	4	0	0	1	1	0	0	0	0
• Built 1950-1970	2	2	1	2	0	0	1	0	0	0	0	0
• Built after 1970	27	27	26	23	0	1	1	3	0	0	0	0
• Not classified	0	0	0	0	0	0	0	0	0	0	0	0
Other:	**61**	**79**	**57**	**73**	**3**	**2**	**0**	**3**	**1**	**1**	**0**	**0**
▪ Built before 1950	41	48	37	42	3	2	0	3	1	1	0	0
▪ Built 1950-1970	6	6	6	6	0	0	0	0	0	0	0	0
▪ Built after 1970	14	25	14	25	0	0	0	0	0	0	0	0
Total	**13,064**	**13,107**	**12,344**	**12,458**	**71**	**72**	**628**	**564**	**13**	**10**	**8**	**3**
* The bridge inspection database does not distinguish reinforced vs. prestressed concrete culverts.												

The following table shows the condition of off-system Texas span-type bridges in September 2002 and September 2003.

Table 3-4. Condition of Off-System Span-type Bridges by Count

Main-span Material	Total Bridges		Sufficient Bridges		Non-sufficient Bridges						Not Classified by Condition	
					Structurally Deficient		Functionally Obsolete		Sub-standard-for-Load-Only			
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
Reinforced concrete:	**2,999**	**3,012**	**1,693**	**1,746**	**160**	**142**	**969**	**920**	**175**	**201**	**2**	**3**
▪ Built before 1950	711	705	301	293	80	70	265	258	65	83	0	1
▪ Built 1950-1970	1,091	1,080	508	512	69	61	427	409	86	96	0	2
▪ Built after 1970	1,197	1,227	884	941	11	11	277	253	24	22	1	0
▪ Not classified	0	0	0	0	0	0	0	0	0	0	1	0
Prestressed concrete:	**2,757**	**2,830**	**1,491**	**1,760**	**23**	**23**	**1,150**	**954**	**86**	**86**	**7**	**7**
▪ Built before 1950	33	24	24	18	1	1	8	5	0	0	0	0
▪ Built 1950-1970	358	344	177	165	10	11	147	138	24	30	0	0
▪ Built after 1970	2,364	2,462	1,288	1,577	12	11	995	811	62	56	7	7
▪ Not classified	2	0	2	0	0	0	0	0	0	0	0	0
Steel:	**3,976**	**4,001**	**1,090**	**1,347**	**962**	**894**	**1,324**	**1,036**	**595**	**718**	**5**	**6**
▪ Built before 1950	928	884	107	111	394	370	265	231	161	171	1	1
▪ Built 1950-1970	904	849	171	178	269	257	325	279	138	135	1	0
▪ Built after 1970	2,144	2,268	812	1,058	299	267	734	526	296	412	3	5
▪ Not classified	0	0	0	0	0	0	0	0	0	0	0	0
Timber:	**1,750**	**1,668**	**198**	**210**	**619**	**563**	**400**	**333**	**525**	**554**	**8**	**8**
▪ Built before 1950	318	288	8	9	173	151	58	48	76	77	3	3
▪ Built 1950-1970	558	522	24	20	254	235	121	101	157	164	2	2
▪ Built after 1970	873	858	166	181	191	177	221	184	292	313	3	3
▪ Not classified	1	0	0	0	1	0	0	0	0	0	0	0
Other:	**490**	**444**	**19**	**28**	**397**	**342**	**40**	**34**	**19**	**21**	**15**	**19**
▪ Built before 1950	424	380	10	13	354	307	31	27	14	14	15	19
▪ Built 1950-1970	46	46	3	6	34	31	6	5	3	4	0	0
▪ Built after 1970	20	18	6	9	9	4	3	2	2	3	0	0
Total	**11,972**	**11,955**	**4,491**	**5,091**	**2,161**	**1,964**	**3,883**	**3,277**	**1,400**	**1,580**	**37**	**43**

The following table shows the condition of off-system Texas bridge-class culverts in September 2002 and September 2003.

Table 3-5. Condition of Off-System Bridge-class Culverts by Count

Main-span Material	Total Culverts		Sufficient Culverts		Non-sufficient Culverts						Not Classified by Condition	
					Structurally Deficient Culverts		Functionally Obsolete Culverts		Sub-standard-for Load-Only Culverts			
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
Concrete*:	**4,005**	**4,057**	**3,344**	**3,439**	**56**	**55**	**551**	**491**	**51**	**70**	**3**	**2**
▪ Built before 1950	594	587	389	375	28	32	146	135	30	45	1	0
▪ Built 1950-1970	1,090	1,079	894	893	15	15	162	150	17	21	2	0
▪ Built after 1970	2,319	2,391	2,059	2,171	13	8	243	206	4	4	0	2
▪ Not classified	2	0	2	0	0	0	0	0	0	0	0	0
Steel:	**144**	**143**	**125**	**132**	**11**	**7**	**7**	**3**	**0**	**0**	**1**	**1**
▪ Built before 1950	22	13	13	8	7	5	2	0	0	0	0	0
▪ Built 1950-1970	20	19	15	15	2	2	3	2	0	0	0	0
▪ Built after 1970	102	111	97	109	2	0	2	1	0	0	1	1
Other:	**85**	**96**	**71**	**82**	**7**	**7**	**6**	**5**	**0**	**1**	**1**	**1**
▪ Built before 1950	73	73	60	59	7	7	5	5	0	1	0	1
▪ Built 1950-1970	4	4	4	4	0	0	0	0	0	0	0	0
▪ Built after 1970	8	19	7	19	0	0	1	0	0	0	1	0
Total	**4,234**	**4,296**	**3,540**	**3,653**	**74**	**69**	**564**	**499**	**51**	**71**	**5**	**4**
* The bridge inspection database does not distinguish reinforced vs. prestressed concrete culverts.												

Change in Condition of Bridges during FY 2003. As shown in the following tables, during FY 2003 the number of sufficient bridges increased by 384—234 additional sufficient on-system bridges and 150 additional sufficient off-system bridges.

Table 3-6. Change in Condition of Sufficient Bridges by Count from September 2000 to September 2002

Condition	September 2000	September 2001	September 2002	Change 2000 to 2001	Change 2001 to 2002
Sufficient On-system Span Bridges	13,543	13,756	13,799	+ 213	+43
Sufficient On-system Bridge-class Culverts	12,257	12,350	12,344	+ 93	–6
Sufficient Off-system Span Bridges	4,283	4,324	4,491	+ 41	+167
Sufficient Off-system Bridge-class Culverts	3,321	3,377	3,540	+ 56	+163
All Sufficient Bridges	**33,404**	**33,807**	**34,174**	**+ 403**	**+367**
Note. In September 2001, bridge records included 83 bridges not classified by condition. In September 2002, bridge records included 68 bridges not classified by condition.					

Table 3-7. Change in Condition of Sufficient Bridges by Count from September 2002 to September 2003

Condition	Sept. 2002 before Adjustment	Sept. 2002 after Adjustment	September 2003	Apparent Change 2002 to 2003	Real Change 2002 to 2003
Sufficient On-system Span Bridges	13,799	15,062	15,207	+ 1,408	+145
Sufficient On-system Bridge-class Culverts	12,344	12,369	12,458	+ 114	+89
Sufficient Off-system Span Bridges	4,491	4,996	5,091	+ 600	+95
Sufficient Off-system Bridge-class Culverts	3,540	3,598	3,653	+ 113	+55
All Sufficient Bridges	**34,174**	**36,025**	**36,409**	**+ 2,235**	**+384**

The number of sufficient bridges in FY 2003 increased by 384; however, 241 of those were new-location bridges, that is, bridges that did not exist before September 2002[3].

During FY 2003, the real change in the number of non-sufficient bridges was a decrease of 127—the total included 23 fewer non-sufficient on-system bridges and 104 fewer non-sufficient off-system bridges. The following figures summarize change in the condition of non-sufficient Texas bridges from September 2000 to September 2003. These numbers include bridges that have recently become non-sufficient.

[3] New-location bridges are added to the inspection database after their post-construction inspection; awarding of contracts for the construction of bridges added to the inspection database may have occurred in previous years.

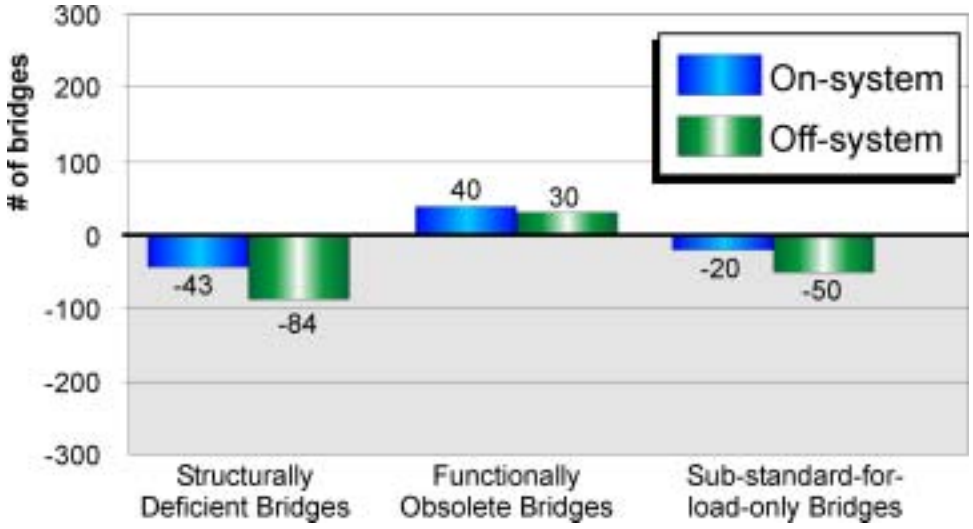


Figure 3-5. Change in Condition of Non-sufficient Bridges during FY 2003

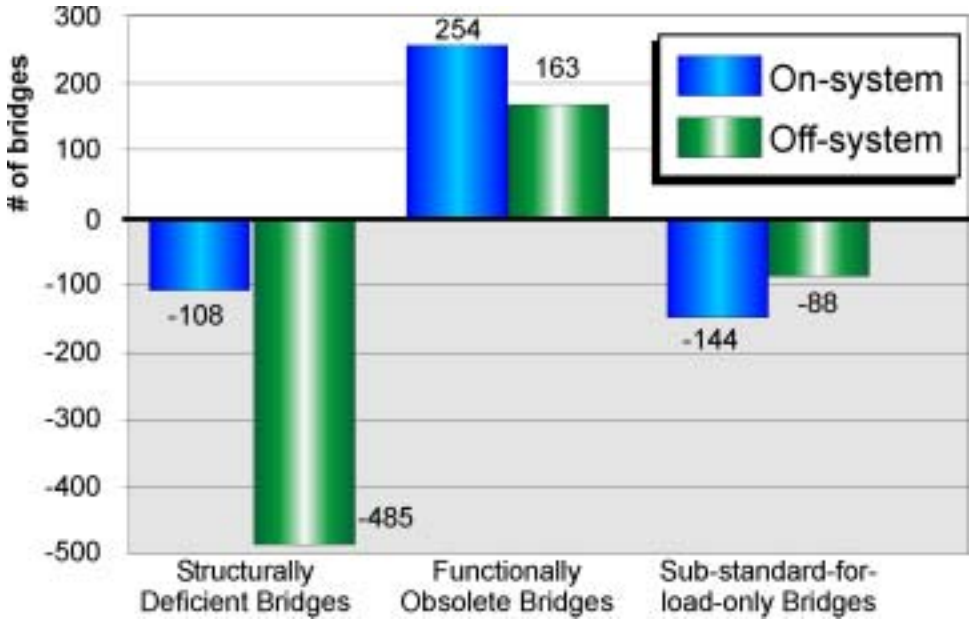


Figure 3-6. Change in Condition of Non-sufficient Bridges between September 2000 and September 2003

The following tables show in more detail the change in condition of non-sufficient bridges from September 2000 to September 2003, and they show the effect resulting from the adjustment of the data set in September 2002.

Table 3-8. Change in Condition of Non-sufficient Bridges by Count from September 2000 to September 2002

Condition		September 2000	September 2001	September 2002	Change 2000 to 2001	Change 2001 to 2002
On-system Span-type Bridges	Structurally Deficient	680	685	622	+ 5	– 63
	Functionally Obsolete	4,153	4,183	4,317	+ 30	+ 134
	Sub-standard for Load Only	293	237	190	– 56	– 47
On-system Bridge-class Culverts	Structurally Deficient	78	78	71	0	– 7
	Functionally Obsolete	578	568	628	– 10	+ 60
	Sub-standard for Load Only	34	35	13	+ 1	– 22
Off-system Span-type Bridges	Structurally Deficient	2,566	2,371	2,161	– 195	– 210
	Functionally Obsolete	3,753	3,844	3,883	+ 91	+ 39
	Sub-standard for Load Only	1,438	1,465	1,400	+ 27	– 65
Off-system Bridge-class Culverts	Structurally Deficient	70	62	74	– 8	+ 12
	Functionally Obsolete	561	611	564	+ 50	– 47
	Sub-standard for Load Only	51	53	51	+ 2	– 2
All Non-sufficient Bridges		**14,255**	**14,192**	**13,974**	**– 63**	**– 218**
Note. In September 2001, bridge records included 83 bridges not classified by condition. In September 2002, bridge records included 68 bridges not classified by condition.						

Table 3-9. Change in Condition of Non-sufficient Bridges by Count from September 2002 to September 2003

Condition		Sept. 2002 before Adjustment	Sept. 2002 after Adjustment	Sept. 2003	Apparent Change 2002 to 2003	Real Change 2002 to 2003
On-system Span-type Bridges	Structurally Deficient	622	621	573	– 49	– 48
	Functionally Obsolete	4,317	3,054	3,137	– 1,180	+ 83
	Sub-standard for Load Only	190	191	174	– 16	– 17
On-system Bridge-class Culverts	Structurally Deficient	71	67	72	+ 1	+ 5
	Functionally Obsolete	628	607	564	– 64	– 43
	Sub-standard for Load Only	13	13	10	– 3	– 3
Off-system Span-type Bridges	Structurally Deficient	2,161	2,046	1,964	– 197	– 82
	Functionally Obsolete	3,883	3,239	3,277	– 606	+ 38
	Sub-standard for Load Only	1,400	1,649	1,580	+ 180	– 69
Off-system Bridge-class Culverts	Structurally Deficient	74	71	69	– 5	– 2
	Functionally Obsolete	564	507	499	– 65	– 8
	Sub-standard for Load Only	51	52	71	+ 20	+ 19
All Non-sufficient Bridges		**13,974**	**12,117**	**11,990**	**– 1,984**	**– 127**

The real change in the number of structurally deficient bridges during FY 2003 was a decrease of 127. The real change in the number of functionally obsolete bridges is an increase of 70. The real change in the number of sub-standard-for-load-only bridges is a decrease of 70.

Load-posted and Closed Bridges. As shown in the following table, in September 2003 Texas had 430 load-posted on-system bridges, down from 443 in September 2002, and 9 closed on-system bridges, down from 12 in September 2002. Texas had 3,215 load-posted off-system bridges, up from 3,113 in September 2002, and 194 closed off-system bridges, up from 193 in September 2002.

Table 3-10. Posted and Closed Bridges as of September 2003

District	On-system Bridges			Off-system Bridges		
	Posted	Closed	Recommended for Posting/ Closure	Posted	Closed	Recommended for Posting/ Closure
Abilene	21	0	1	174	16	1
Amarillo	2	0	12	41	0	0
Atlanta	25	0	6	15	3	25
Austin	23	0	0	114	23	0
Beaumont	11	0	4	120	3	29
Brownwood	15	0	2	57	3	64
Bryan	16	1	6	269	3	33
Childress	21	0	8	59	6	12
Corpus Christi	35	1	6	92	8	23
Dallas	69	2	31	129	28	144
El Paso	7	1	0	84	1	0
Fort Worth	16	0	1	261	16	59
Houston	2	0	0	348	7	0
Laredo	1	0	3	44	2	15
Lubbock	0	0	0	9	0	0
Lufkin	30	0	1	144	1	100
Odessa	2	0	1	2	0	0
Paris	33	0	22	130	9	227
Pharr	0	0	1	32	7	0
San Angelo	3	0	0	21	4	19
San Antonio	3	1	3	90	9	25
Tyler	9	3	5	110	8	176
Waco	48	0	3	514	17	0
Wichita Falls	7	0	1	79	9	64
Yoakum	31	0	0	277	11	56
Total	**430**	**9**	**117**	**3,215**	**194**	**1,072**

Local governments are legally required to comply with a TxDOT inspector's request to load-post an off-system bridge. Federal law requires that load-posting signs be installed within 90 days of a change in status indicating deficiency of an on-system bridge and within 180 days of a change in status indicating deficiency of an off-system bridge. Posting of a bridge can take several months: TxDOT inspects the bridge, analyzes the inspection data, and makes a formal posting recommendation. For off-system bridges, the local government acknowledges the request and arranges for fabrication of appropriate signs. (At the request of the local government, TxDOT will supply the signs and make them available to the local government for installation.) When the local government installs the signs, a TxDOT inspector verifies compliance. In September 2003, Texas had 117 on-system bridges and 1,072 off-system bridges recommended for either posting

or removal of posting or for closure, or at some stage of getting posting signs erected or removed.

Local governments are encouraged but not legally required to comply with a request to close an off-system bridge. To encourage compliance, TxDOT uses its Participation-Waived Project/Equivalent Match Project (PWP/EMP) program, described in Chapter 5 of this report, to encourage compliance by local governments with recommendations for posting or closure of off-system bridges. Local governments cannot participate in the PWP/EMP program until TxDOT confirms their compliance with all requests to post or close off-system bridges in their jurisdiction.

Land-locking Bridges. The Texas Transportation Code establishes the minimum load that un-posted Texas bridges must be able to carry. Bridges unable to safely support that minimum load must be load-posted to protect them and the people who travel them from possible harm. This minimum load is the state legal load: in general, the maximum gross load on any truck cannot exceed 80,000 lbs., the maximum load on any tandem axles cannot exceed 34,000 lbs., and the maximum load on any single axle cannot exceed 20,000 lbs.

However, vehicles exceeding posted limits may use load-posted bridges under the following condition: by Texas law, a carrier is eligible for an annual "2060" permit at a fee allowing transport of excess loads on a land-locking bridge. These 2060-permitted loads may be a maximum of 10% per axle and 5% gross over the state legal load. In addition, certain vehicles identified in Chapter 622 of the Texas Transportation Code that exceed posted load capacity can legally use load-posted bridges.

Land-locking bridges limit the movement of legal loads into an area by imposing load restrictions or by being closed. TxDOT identifies a bridge or combination of bridges as land-locking only if no other public road into the area—and it must be a public road shown on a map maintained by TxDOT—is capable of supporting legal loads. As shown in the following table, in September 2003 Texas had 128 land-locking on-system bridges, no change from September 2002, and 1,024 land-locking off-system bridges, down from 1,083 in September 2002.

Permitted vehicles that exceed posted limits may legally use land-locking bridges. Use of land-locking bridges for excess loads can increase risk of damage to the bridge. However, failure to use such a bridge can inhibit commerce in the land-locked region.

Table 3-11. Land-locking Bridges as of September 2003

District	On-system Land-locking Bridges	Off-system Land-locking Bridges
Abilene	1	27
Amarillo	2	6
Atlanta	20	10
Austin	6	15
Beaumont	2	34
Brownwood	4	19
Bryan	5	89
Childress	7	17
Corpus Christi	7	32
Dallas	30	61
El Paso	5	14
Fort Worth	3	68
Houston	0	116
Laredo	0	50
Lubbock	0	0
Lufkin	7	82
Odessa	0	2
Paris	11	61
Pharr	0	8
San Angelo	0	8
San Antonio	0	16
Tyler	3	55
Waco	10	142
Wichita Falls	2	29
Yoakum	3	63
Total	**128**	**1,024**

In March 2001, TxDOT began tracking information about land-locking bridges and giving special consideration to programming bridge projects that include land-locking bridges.

Chapter 4 – Condition of Span-type Bridges

Focus on Span-type Bridges. Span-type bridges are structurally more complex than bridge-class culverts, which are usually covered with embankment. As shown in Table 3-9, Texas span-type bridges have higher levels of structural deficiency and functional obsolescence than bridge-class culverts.

Analyses of the condition of Texas bridges based on bridge counts, as provided in the previous chapter, focus on the number of sites where bridges pose structural concerns and the potential for traffic disruption. However, span-type bridges vary widely in size, and additional descriptions of the condition of span-type bridges by bridge deck area focus on relative costs for bridge owners to repair, rehabilitate, or replace them.

The following figures show the condition of span-type bridges in September 2003 by count and by deck area. In September 2003, 8% of all span-type bridges were structurally deficient, and 3% of all span-type deck area was structurally deficient.

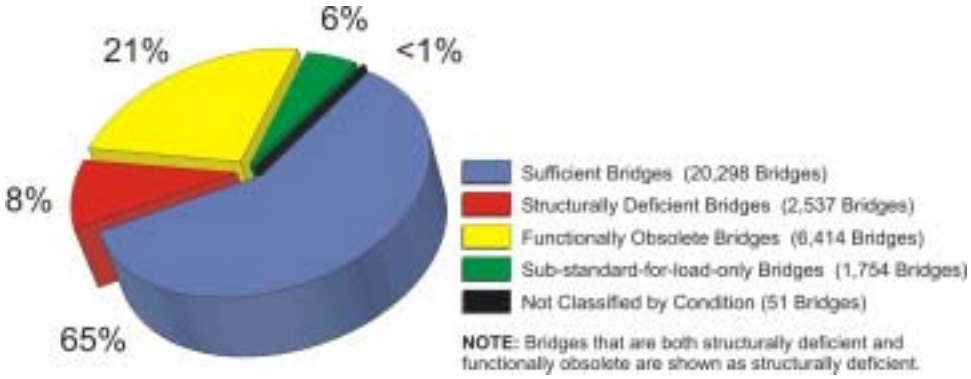


Figure 4-1. Condition of Texas Span-type Bridges by Count in September 2003 (31,054 Total)

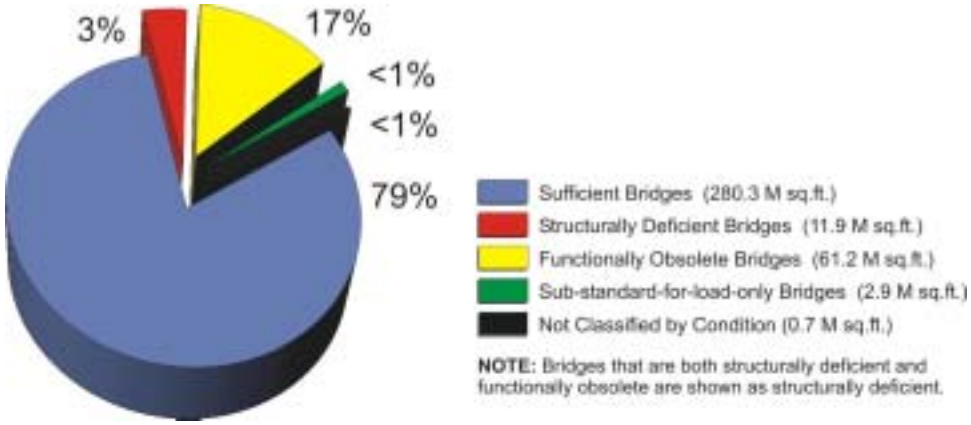


Figure 4-2. Condition of Texas Span-type Bridge Deck Area in September 2003 (357.0 M sq. ft. Total)

The following figures show the condition of on-system span-type bridges in September 2003 by count and by deck area. By both count and deck area, 3% of all on-system span-type bridges were structurally deficient in September 2003. In September 2003, 16% of all on-system span-type bridges were functionally obsolete by count, and 14% of all on-system span-type bridge deck area was functionally obsolete. In September 2003, 1% of all on-system span-type bridges were sub-standard-for-load-only, and 0.3% of all on-system span-type bridge deck area was sub-standard-for-load-only.

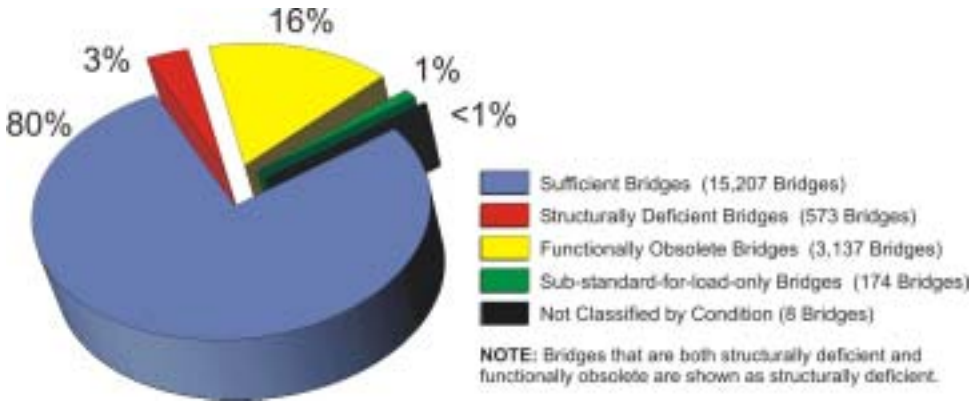


Figure 4-3. Condition of On-system Span-type Bridges by Count in September 2003 (19,099 Total)

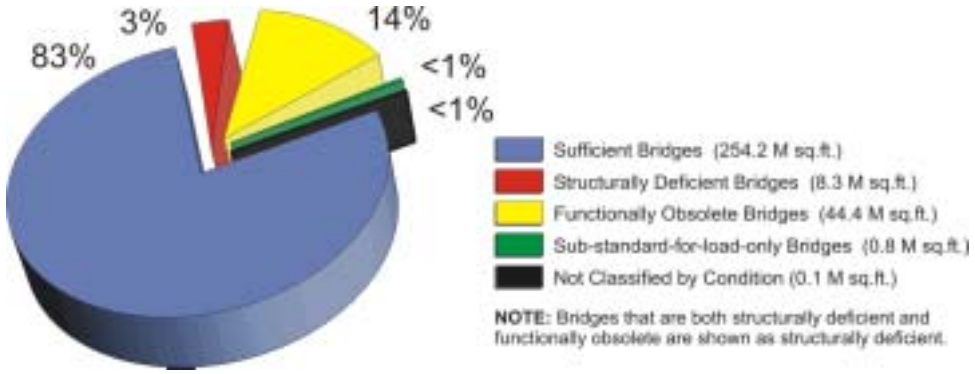


Figure 4-4. Condition of On-system Span-type Bridge Deck Area in September 2003 (307.8 M sq. ft. Total)

The following figures show the condition of off-system span-type bridges in FY 2003 by count and by deck area. Although 16% of all off-system span-type bridges were structurally deficient in September 2003, only 8% of the total off-system span-type bridge deck area was structurally deficient. However, 27% of all off-system span-type bridges were functionally obsolete, and 34% of the total off-system span-type bridge deck area was functionally obsolete. Thirteen percent of all off-system span-type bridges were sub-standard-for-load-only, but only 4% of the total off-system span-type bridge deck area was sub-standard-for-load-only.

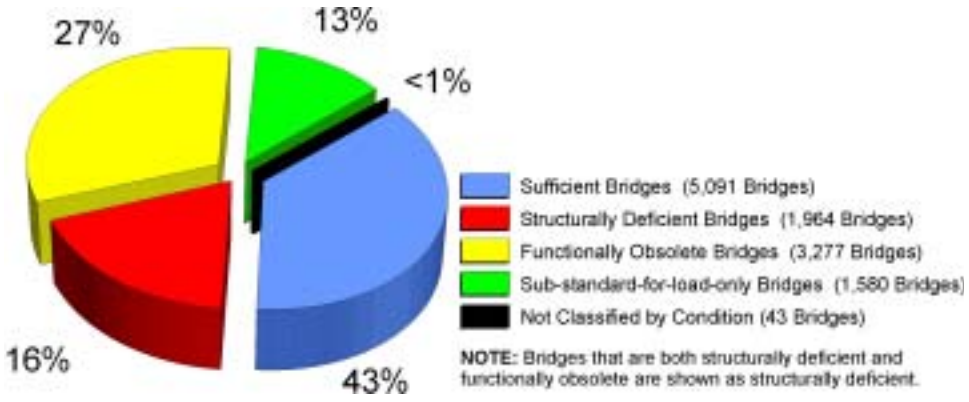


Figure 4-5. Condition of Off-system Span-type Bridges by Count in September 2003 (11,955 Total)

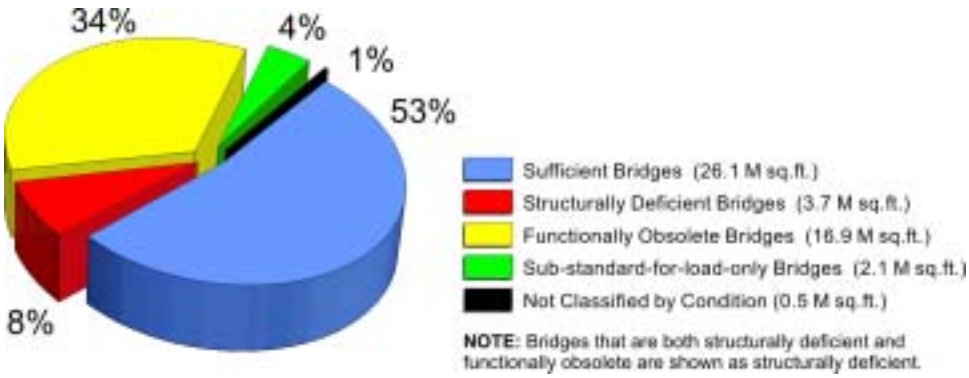


Figure 4-6. Condition of Off-system Span-type Bridge Deck Area in September 2003 (49.3 M sq. ft. Total)

Off-system span-type bridges consistently show higher percentages of non-sufficiency than do on-system span-type bridges. For on-system span-type bridges, the difference in percentage of non-sufficient bridges by condition varies little whether measured by count or deck area. However, for off-system span-type bridges, percentages based on counts are significantly higher than percentages based on deck area for structurally deficient and sub-standard-for-load-only bridges. Percentages based on counts are significantly lower than percentages based on deck area for functionally obsolete off-system span-type bridges.

The following figure shows age and condition of on-system Texas span-type bridges.

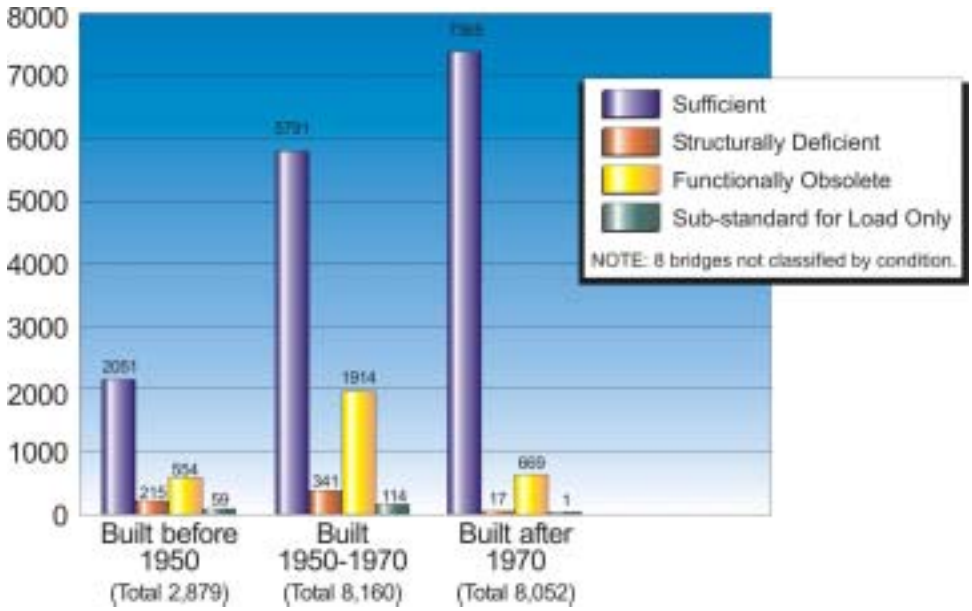


Figure 4-7. Age and Condition of On-system Span-type Bridges by Count in September 2003

The following figure shows age and condition of off-system Texas span-type bridges.

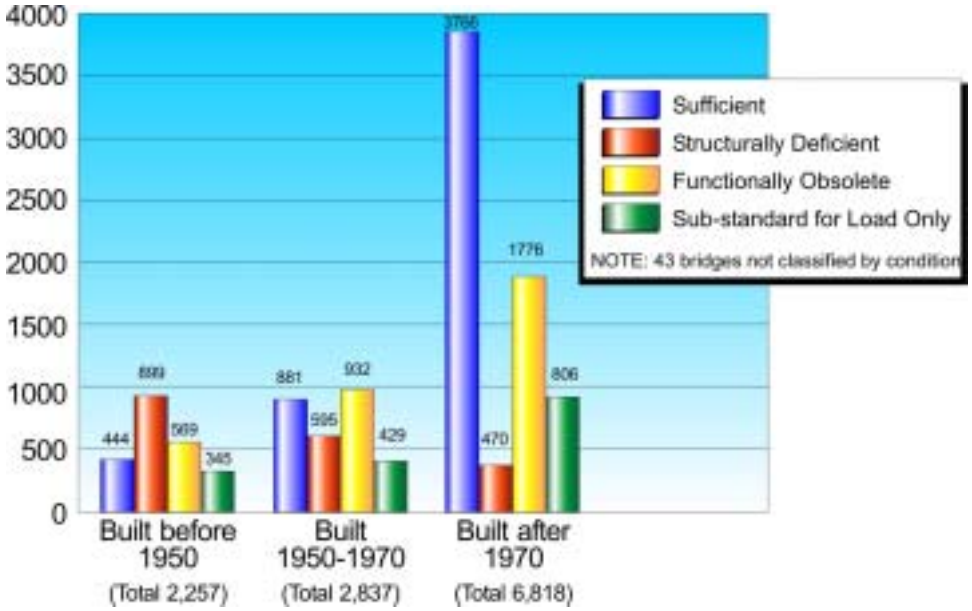


Figure 4-8. Age and Condition of Off-system Span-type Bridges by Count in September 2003

Newer span-type bridges show greater numbers of sufficient bridges. More on-system bridges built between 1950 and 1970 are structurally deficient, functionally obsolete, or sub-standard-for-load-only than older or newer on-system span-type bridges. For off-system bridges, newer span-type bridges show fewer structurally deficient bridges. However, for off-system bridges the numbers for functionally obsolete and sub-standard-for-load-only bridges increase for newer groups of bridges.

Structurally Deficient Span-type Bridges. As shown in Figures 4-3 and 4-4, in September 2003 Texas had 573 structurally deficient on-system span-type bridges, with a total of 8,264,561 sq. ft. of structurally deficient deck area. This represents a decrease of 49 structurally deficient on-system span-type bridges (48 fewer structurally deficient on-system span-type bridges, see Table 3-9) and a decrease of 1,438,565 sq. ft.[4] of structurally deficient on-system span-type bridge deck area (1,427,935 fewer sq. ft., see Table 4-16) during FY 2003.

The following tables show the number of on-system structurally deficient span-type bridges and their deck area for each district.

Table 4-1. Count of Structurally Deficient On-system Span-type Bridges by District in September 2003

District	Structurally Deficient Bridges		District	Structurally Deficient Bridges	
	Count	% On-System Count in District		Count	% of On-System Count in District
Abilene	22	3.4%	Laredo	4	1.4%
Amarillo	78	17.9%	Lubbock	0	0%
Atlanta	35	7.1%	Lufkin	47	9.2%
Austin	30	3.2%	Odessa	5	1.6%
Beaumont	19	2.8%	Paris	28	3.5%
Brownwood	1	0.2%	Pharr	2	0.4%
Bryan	17	2.5%	San Angelo	2	0.4%
Childress	35	13.3%	San Antonio	10	0.7%
Corpus Christi	18	2.4%	Tyler	13	2.2%
Dallas	59	2.5%	Waco	19	2.1%
El Paso	4	0.8%	Wichita Falls	21	4.0%
Fort Worth	77	5.7%	Yoakum	17	2.0%
Houston	10	0.5%	**Total**	**573**	**3.0%**

[4] See *Report on Texas Bridges as of September 2002.*

Table 4-2. Deck Area of Structurally Deficient On-system Span-type Bridges by District in September 2003

District	Structurally Deficient Bridges		District	Structurally Deficient Bridges	
	Deck Area (sq. ft.)	% of On-System Area in District		Deck Area (sq. ft.)	% of On-System Area in District
Abilene	165,419	3.3%	Laredo	8,149	2.4%
Amarillo	849,660	15.6%	Lubbock	0	0%
Atlanta	100,978	1.6%	Lufkin	339,221	5.7%
Austin	358,700	2.0%	Odessa	39,774	1.2%
Beaumont	1,052,303	8.8%	Paris	564,572	8.2%
Brownwood	11,985	0.4%	Pharr	2,732	0%
Bryan	106,122	1.8%	San Angelo	28,859	0.6%
Childress	309,026	11.1%	San Antonio	57,429	2.2%
Corpus Christi	671,163	6.0%	Tyler	102,145	1.4%
Dallas	1,156,720	2.6%	Waco	92,531	1.0%
El Paso	18,395	0.3%	Wichita Falls	287,958	4.5%
Fort Worth	1,025,454	4.9%	Yoakum	55,018	0.6%
Houston	860,248	1.2%	**Total**	**8,264,561**	**2.7%**

The following figure shows the distribution by district of on-system span-type bridge deck area that is structurally deficient.

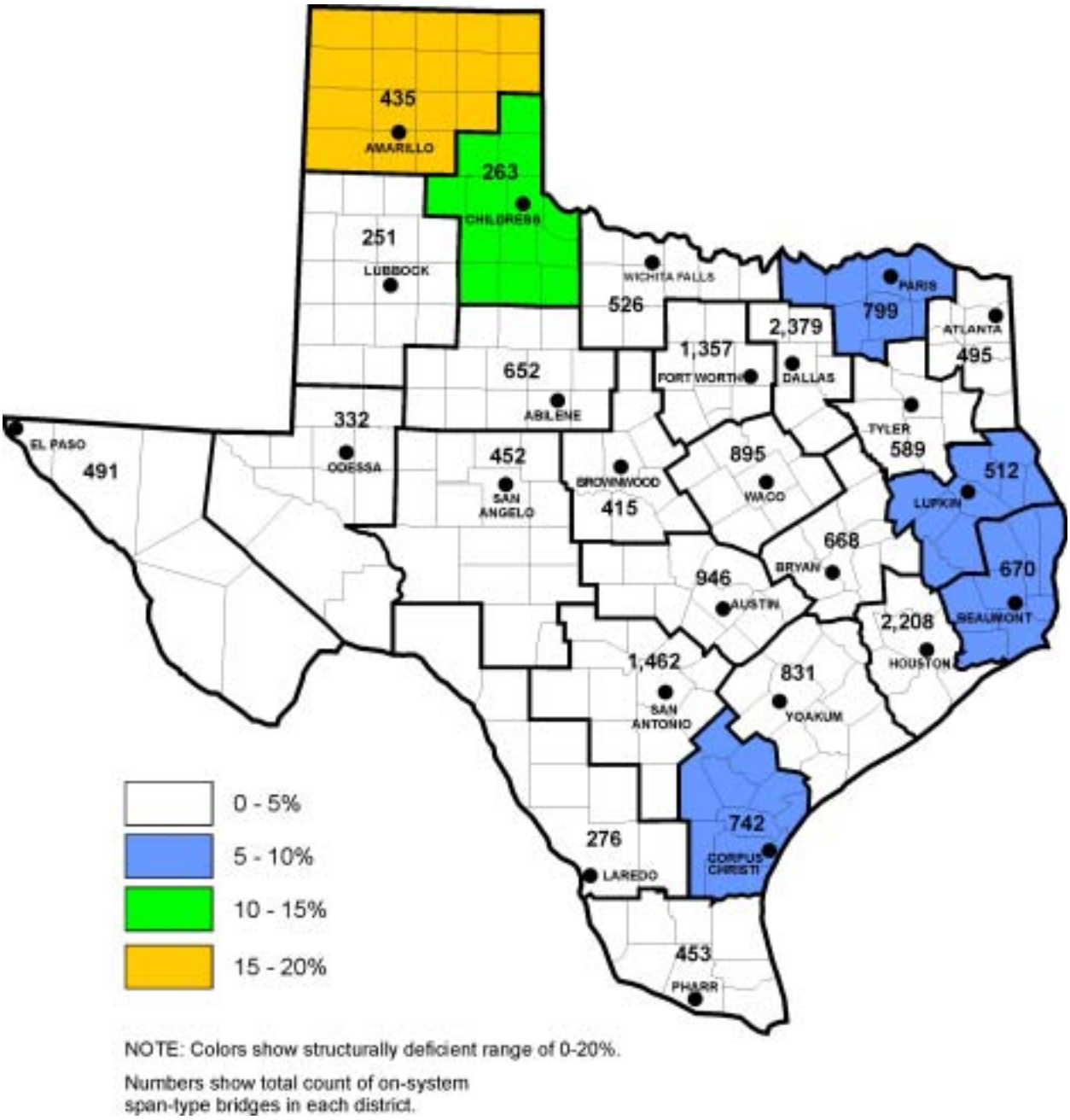


Figure 4-9. Percent of Structurally Deficient On-system Span-type Bridge Deck Area in September 2003 by District

As shown in Figures 4-5 and 4-6, in September 2003 Texas had 1,964 structurally deficient off-system span-type bridges, with a total of 3,671,695 sq. ft. of structurally deficient deck area. This represents a decrease of 197 structurally deficient off-system span-type bridges (82 fewer structurally deficient off-system span-type bridges, see Table 3-9) and a reduction of 116,232 sq.

ft.[5] of structurally deficient off-system span-type bridge deck area (17,439 fewer sq. ft, see Table 4-16) since September 2002.

The following tables show the number of off-system structurally deficient span-type bridges and their deck area for each district.

Table 4-3. Count of Structurally Deficient Off-system Span-type Bridges by District in September 2003

District	Structurally Deficient Bridges		District	Structurally Deficient Bridges	
	Count	% of Off-System Count in District		Count	% of Off-System Count in District
Abilene	102	34.8%	Laredo	9	8.2%
Amarillo	15	21.7%	Lubbock	5	31.3%
Atlanta	54	35.5%	Lufkin	113	23.6%
Austin	60	10.1%	Odessa	1	16.7%
Beaumont	54	16.3%	Paris	242	32.3%
Brownwood	55	21.7%	Pharr	18	6.3%
Bryan	124	23.8%	San Angelo	15	19.7%
Childress	56	32.7%	San Antonio	44	10.2%
Corpus Christi	64	25.3%	Tyler	94	20.2%
Dallas	126	8.8%	Waco	227	27.1%
El Paso	5	31.3%	Wichita Falls	81	23.1%
Fort Worth	168	19.0%	Yoakum	135	14.3%
Houston	97	4.7%	**Total/Avg.**	**1,964**	**16.4%**

Table 4-4. Deck Area of Structurally Deficient Off-system Span-type Bridges by District in September 2003

District	Structurally Deficient Bridges		District	Structurally Deficient Bridges	
	Deck Area (sq. ft.)	% of Off-System Area in District		Deck Area (sq. ft.)	% of Off-System Area in District
Abilene	125,234	22.3%	Laredo	8,752	0.8%
Amarillo	153,721	32.5%	Lubbock	4,638	11.8%
Atlanta	44,213	9.1%	Lufkin	81,419	17.5%
Austin	71,394	2.3%	Odessa	629	7.2%
Beaumont	56,931	7.8%	Paris	176,898	22.2%
Brownwood	66,404	14.5%	Pharr	32,255	4.0%
Bryan	116,151	18.9%	San Angelo	45,268	13.5%
Childress	78,410	31.4%	San Antonio	127,753	3.8%
Corpus Christi	114,266	21.5%	Tyler	77,590	12.2%
Dallas	573,895	4.4%	Waco	297,188	17.1%
El Paso	40,449	4.8%	Wichita Falls	64,313	14.3%
Fort Worth	536,907	13.3%	Yoakum	130,589	8.7%
Houston	646,428	5.5%	**Total/Avg.**	**3,671,695**	**7.6%**

[5] See *Report on Texas Bridges as of September 2002.*

The following figure shows the distribution by district of off-system span-type bridge deck area that is structurally deficient.

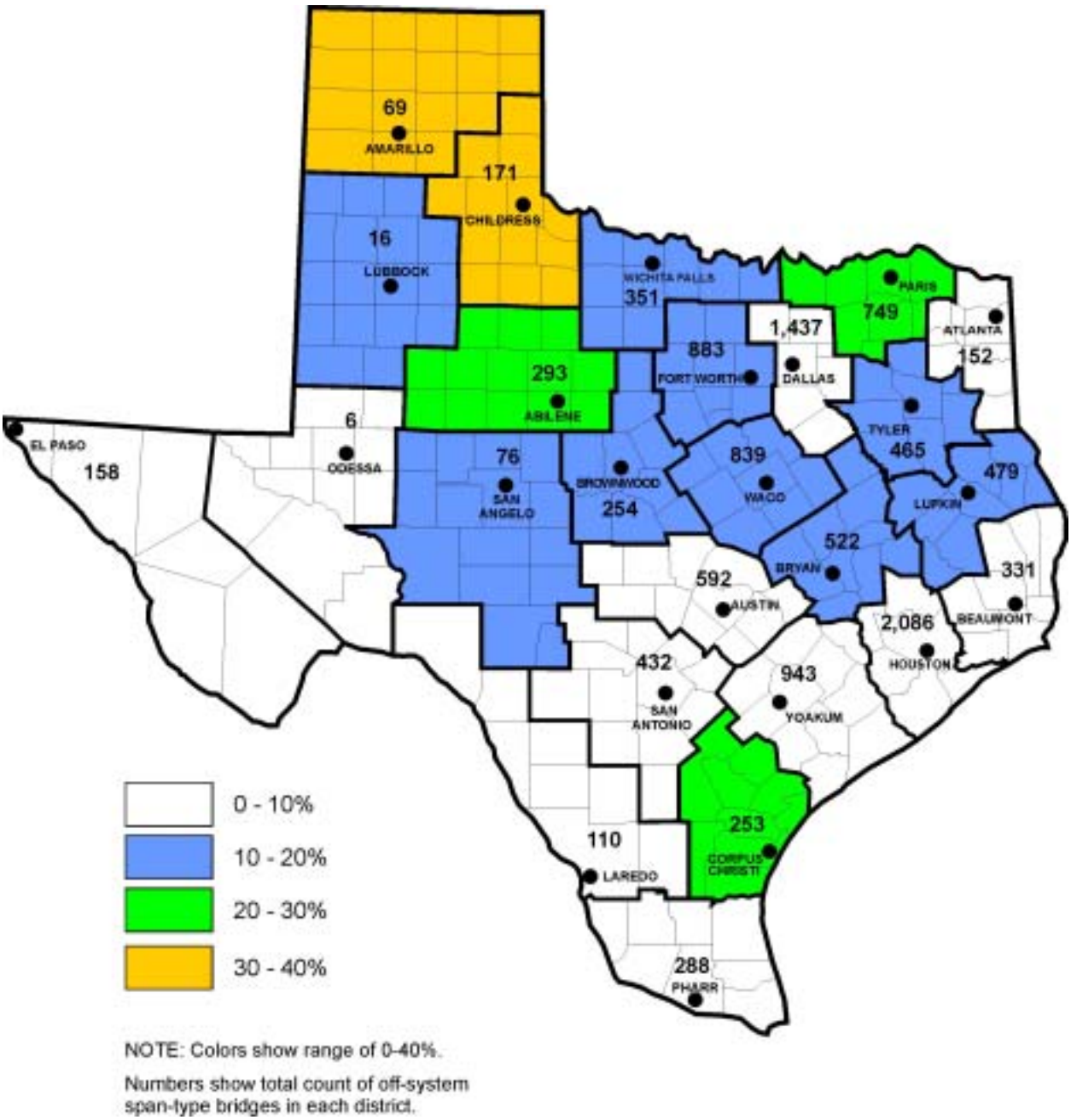


Figure 4-10. Percent of Structurally Deficient Off-system Span-type Bridge Deck Area in September 2003 by District

The following figure shows the distribution by county of off-system span-type bridge deck area that is structurally deficient.

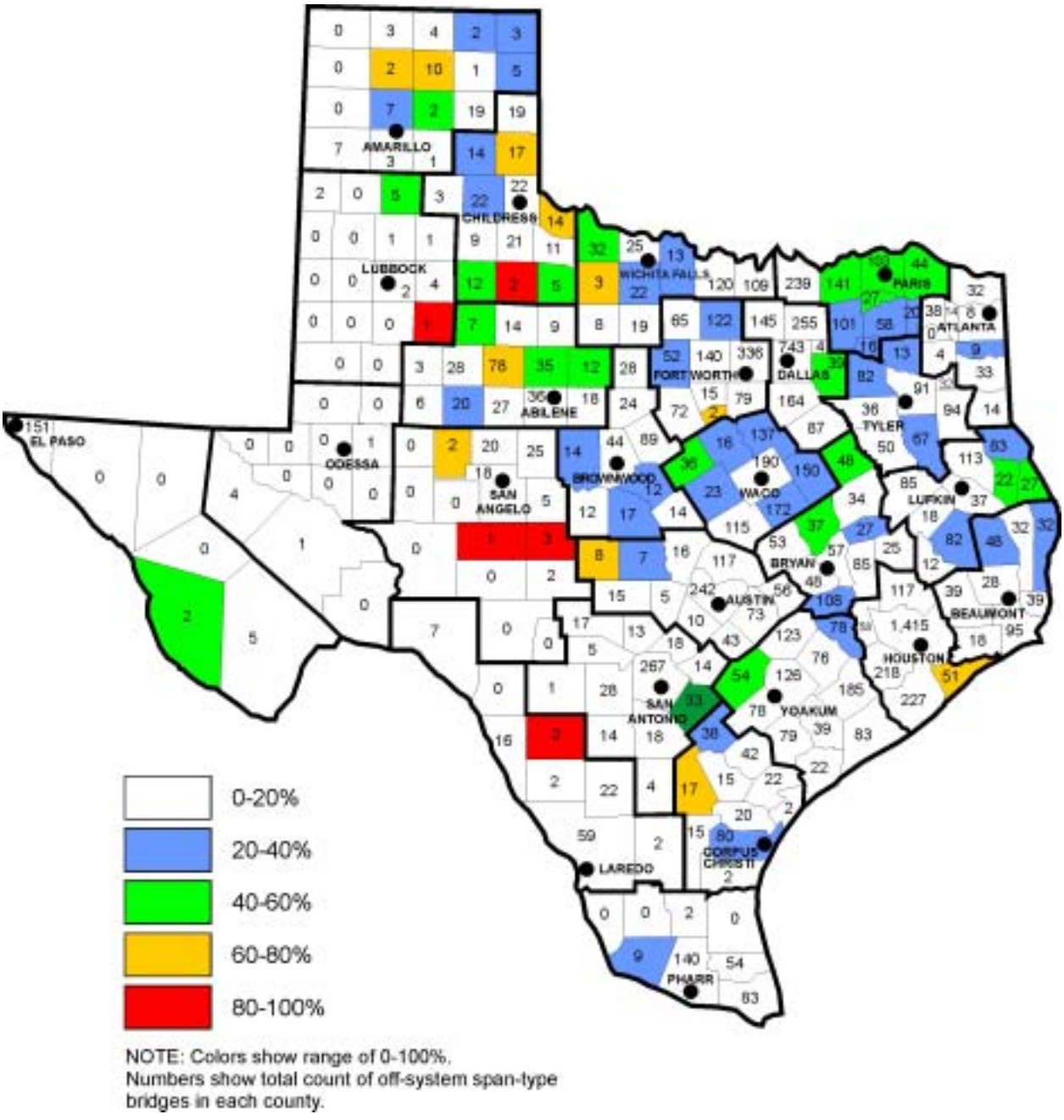


Figure 4-11. Percent of Structurally Deficient Off-system Span-type Bridge Deck Area in September 2003 by County

See Appendix A for information on structurally deficient off-system span-type bridges in Texas counties.

Functionally Obsolete Span-type Bridges. As shown in Figures 4-3 and 4-4, in September 2003 Texas had 3,137 functionally obsolete on-system span-type bridges, with a total of 44,355,304 sq. ft. of functionally obsolete deck area. This represents a decrease of 1,180 functionally obsolete on-system span-type bridges (83 additional functionally obsolete on-system span-type bridges (see Table 3-9) and a decrease of 33,662,912 sq. ft. [6]of functionally obsolete on-system span-type bridge deck area (2,336,467 additional sq. ft., see Table 4-16) since September 2002.

The following tables show the number of on-system functionally obsolete span-type bridges and their deck area for each district.

Table 4-5. Count of Functionally Obsolete On-system Span-type Bridges by District in September 2003

District	Functionally Obsolete Bridges		District	Functionally Obsolete Bridges	
	Count	% of On-System Count in District		Count	% of On-System Count in District
Abilene	103	15.8%	Laredo	16	5.8%
Amarillo	24	5.5%	Lubbock	40	15.9%
Atlanta	70	14.1%	Lufkin	62	12.1%
Austin	222	23.5%	Odessa	23	6.9%
Beaumont	97	14.5%	Paris	131	16.4%
Brownwood	35	8.4%	Pharr	72	15.9%
Bryan	109	16.3%	San Angelo	36	8.0%
Childress	5	1.9%	San Antonio	242	16.6%
Corpus Christi	79	10.6%	Tyler	73	12.4%
Dallas	667	28.0%	Waco	149	16.6%
El Paso	77	15.7%	Wichita Falls	41	7.8%
Fort Worth	213	15.7%	Yoakum	111	13.4%
Houston	440	19.9%	**Total**	**3,137**	**16.4%**

[6] See *Report on Texas Bridges as of September 2002.*

Table 4-6. Deck Area of Functionally Obsolete On-system Span-type Bridges by District in September 2003

District	Functionally Obsolete Bridges		District	Functionally Obsolete Bridges	
	Deck Area (Sq. Ft.)	% of On-System Area in District		Deck Area (Sq. Ft.)	% of District On-System Area in District
Abilene	637,607	12.7%	Laredo	155,113	4.6%
Amarillo	195,286	3.6%	Lubbock	528,402	14.9%
Atlanta	682,807	11.1%	Lufkin	386,037	6.5%
Austin	2,671,700	15.0%	Odessa	223,953	6.1%
Beaumont	833,876	7.0%	Paris	701,060	10.2%
Brownwood	198,919	6.6%	Pharr	924,757	12.4%
Bryan	690,402	11.9%	San Angelo	471,996	9.3%
Childress	33,815	1.2%	San Antonio	4,551,158	18.2%
Corpus Christi	812,299	7.3%	Tyler	748,134	10.4%
Dallas	9,912,339	22.0%	Waco	2,009,475	20.9%
El Paso	1,448,081	20.9%	Wichita Falls	404,355	6.3%
Fort Worth	2,543,559	12.2%	Yoakum	1,721,975	17.7%
Houston	10,868,199	15.2%	**Total**	**44,355,304**	**14.4%**

The following figure shows the distribution by district of on-system span-type bridge deck area that is functionally obsolete.

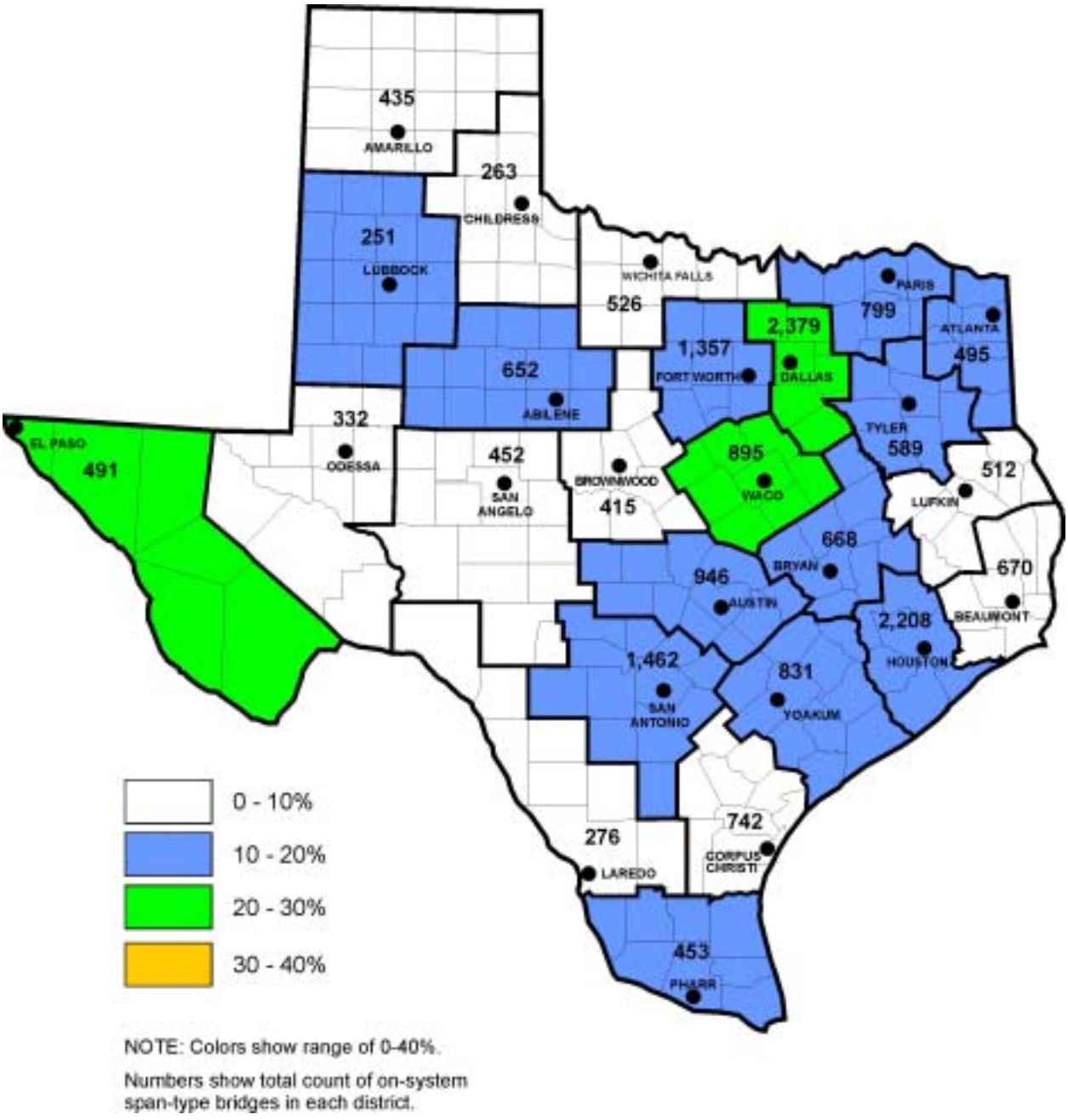


Figure 4-12. Percent of Functionally Obsolete On-system Span-type Bridge Deck Area in September 2003 by District

As shown in Figures 4-5 and 4-6, in September 2003 Texas had 3,277 functionally obsolete off-system span-type bridges, with a total of 16,877,501 sq. ft. of functionally obsolete deck area. This represents a decrease of 606 functionally obsolete off-system span-type bridges (38

additional functionally obsolete on-system span-type bridges, see Table 3-9) and a decrease of 4,434,191 sq. ft.[7] of functionally obsolete off-system span-type bridge deck area (28,765 fewer sq. ft., see Table 4-16) since September 2002.

The following tables show the number of off-system functionally obsolete span-type bridges and their deck area for each district.

Table 4-7. Count of Functionally Obsolete Off-system Span-type Bridges by District in September 2003

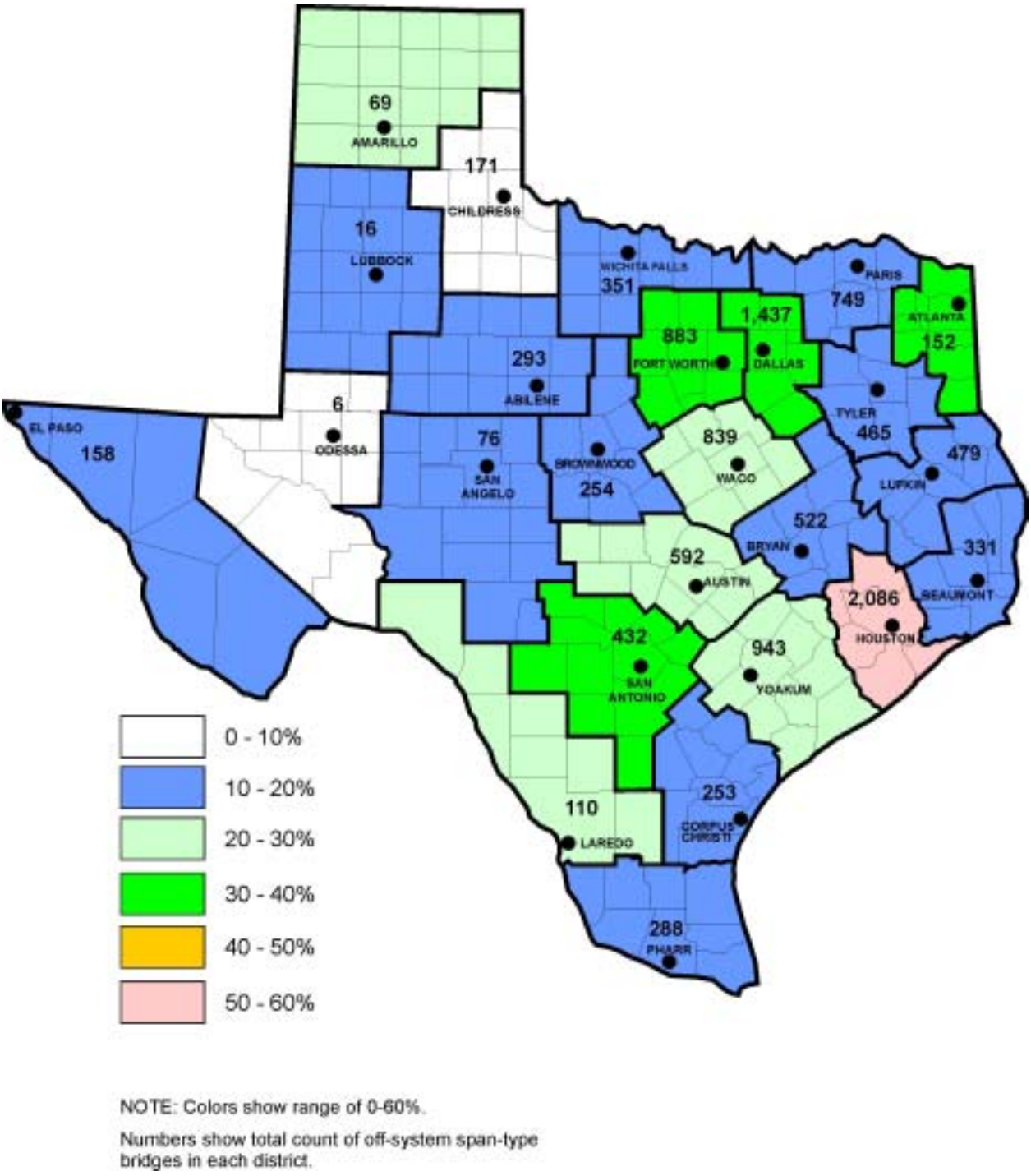
District	Functionally Obsolete Bridges		District	Functionally Obsolete	
	Count	% of Off-System Count in District		Count	% of Off-System Count in District
Abilene	44	15.0%	Laredo	38	34.5%
Amarillo	11	15.9%	Lubbock	2	12.5%
Atlanta	32	21.1%	Lufkin	59	12.3%
Austin	137	23.1%	Odessa	1	16.7%
Beaumont	72	21.8%	Paris	125	16.7%
Brownwood	45	17.7%	Pharr	62	21.5%
Bryan	114	21.8%	San Angelo	17	22.4%
Childress	12	7.0%	San Antonio	147	34.0%
Corpus Christi	41	16.2%	Tyler	116	24.9%
Dallas	559	38.9%	Waco	174	20.7%
El Paso	24	15.2%	Wichita Falls	56	16.0%
Fort Worth	248	28.1%	Yoakum	215	22.8%
Houston	926	44.4%	**Total/Avg.**	**3,277**	**27.4%**

[7] See *Report on Texas Bridges as of September 2002.*

Table 4-8. Deck Area of Functionally Obsolete Off-system Span-type Bridges by District in September 2003

District	Functionally Obsolete Bridges		District	Functionally Obsolete Bridges	
	Deck Area (sq. ft.)	% of Off-System Area in District		Deck Area (sq. ft.)	% of Off-System Area in District
Abilene	59,220	10.6%	Laredo	289,197	28.0%
Amarillo	95,261	20.2%	Lubbock	3,942	10.1%
Atlanta	191,631	39.5%	Lufkin	55,933	12.0%
Austin	702,908	22.3%	Odessa	400	4.6%
Beaumont	128,313	17.6%	Paris	109,308	13.7%
Brownwood	70,796	15.4%	Pharr	258,224	13.0%
Bryan	105,944	17.2%	San Angelo	60,903	18.1%
Childress	8,477	3.4%	San Antonio	1,230,602	36.5%
Corpus Christi	84,828	16.0%	Tyler	97,041	15.2%
Dallas	5,000,070	38.2%	Waco	379,250	21.9%
El Paso	131,247	15.5%	Wichita Falls	69,626	15.5%
Fort Worth	1,497,863	37.0%	Yoakum	311,061	20.7%
Houston	5,935,456	50.8%	**Total/Avg.**	**16,877,501**	**34.2%**

The following figure shows the distribution by district of off-system span-type bridge deck area that is functionally obsolete.



NOTE: Colors show range of 0-60%.

Numbers show total count of off-system span-type bridges in each district.

Figure 4-13. Percent of Functionally Obsolete Off-system Span-type Bridge Deck Area in September 2003 by District

The following figure shows the distribution by county of off-system span-type bridge deck area that is functionally obsolete.

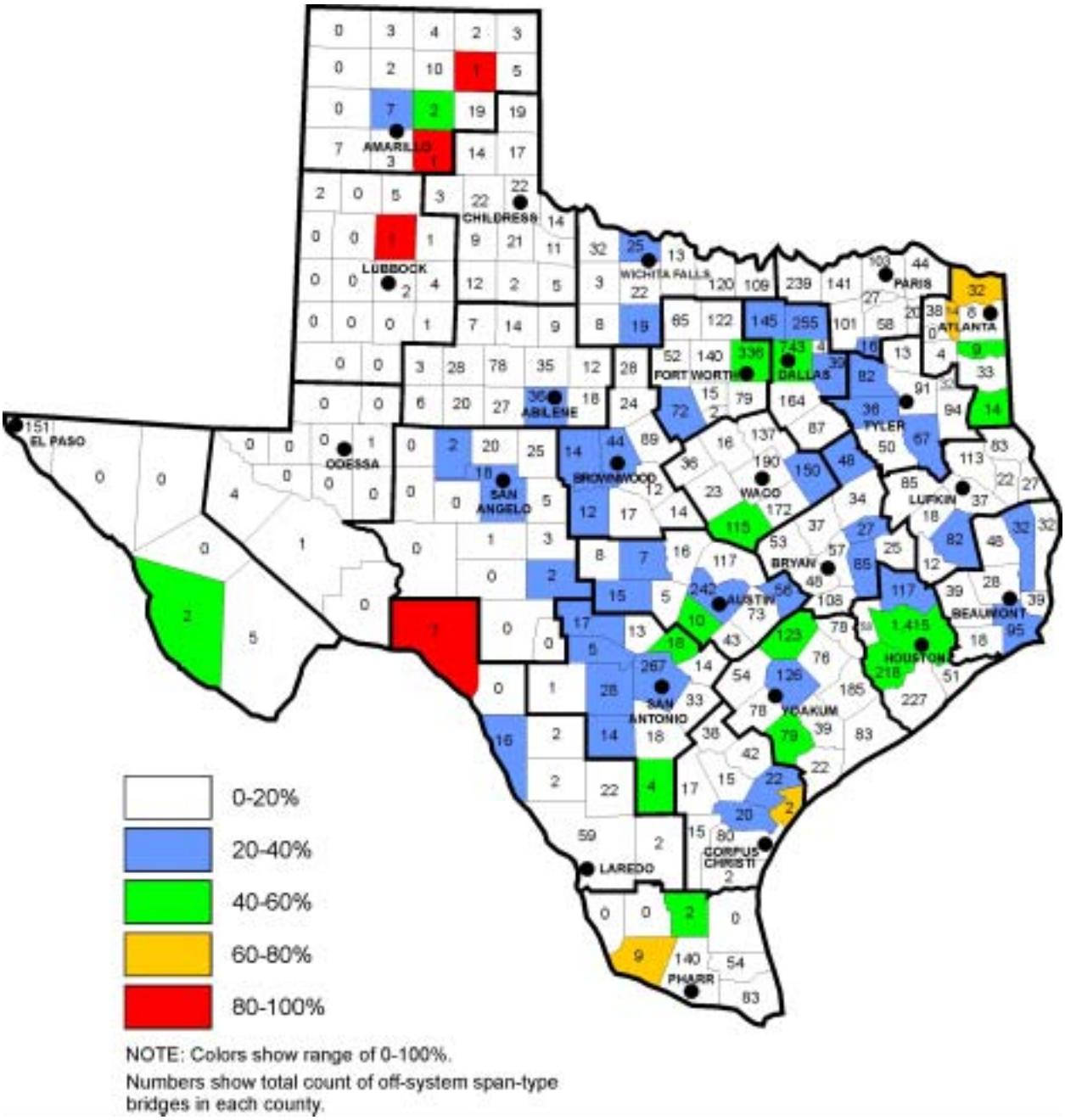


Figure 4-14. Percent of Functionally Obsolete Off-system Span-type Bridge Deck Area in September 2003 by County

See Appendix A for information on functionally obsolete off-system span-type bridges in Texas counties.

Sub-standard-for-Load-Only Span-type Bridges. As shown in Figures 4-3 and 4-4, in September 2003 Texas had 174 sub-standard-for-load-only on-system span-type bridges, with a total of 769,867 sq. ft. of sub-standard-for-load-only deck area. This represents a decrease after adjustment of the data set of 16 sub-standard-for-load-only on-system span-type bridges (real change of 17 fewer sub-standard-for-load-only on-system span-type bridges, see Table 3-9) and a decrease after adjustment of the database of 97,083 sq. ft.[8] of sub-standard-for-load-only on-system span-type bridge deck area (real change of 121,346 fewer sq. ft, see Table 4-16) since September 2002.

The following tables show the number of on-system sub-standard-for-load-only bridges and their deck area for each district.

Table 4-9. Count of Sub-standard-for-Load-Only On-system Span-type Bridges by District in September 2003

District	Sub-standard-for-Load-Only Bridges		District	Sub-standard-for-Load-Only Bridges	
	Count	% of On-System Count in District		Count	% of On-System Count in District
Abilene	13	2.0%	Laredo	1	0.4%
Amarillo	0	0.0%	Lubbock	0	0.0%
Atlanta	1	0.2%	Lufkin	12	2.3%
Austin	7	0.7%	Odessa	0	0.0%
Beaumont	7	1.0%	Paris	21	2.6%
Brownwood	7	1.7%	Pharr	0	0.0%
Bryan	3	0.4%	San Angelo	2	0.4%
Childress	16	6.1%	San Antonio	1	0.1%
Corpus Christi	16	2.2%	Tyler	2	0.3%
Dallas	21	0.9%	Waco	25	2.8%
El Paso	5	1.0%	Wichita Falls	6	1.1%
Fort Worth	4	0.3%	Yoakum	4	0.5%
Houston	0	0.0%	**Total/Avg.**	**174**	**0.9%**

[8] See *Report on Texas Bridges as of September 2002.*

Table 4-10. Deck Area of Sub-standard-for-Load-Only On-system Span-type Bridges by District in September 2003

District	Sub-standard-for-Load-Only Bridges		District	Sub-standard-for-Load-Only Bridges	
	Deck Area (sq. ft.)	% of On-System Area in District		Deck Area (sq. ft.)	% of On-System Area in District
Abilene	43,777	0.9%	Laredo	4,480	0.1%
Amarillo	0	0.0%	Lubbock	0	0.0%
Atlanta	1,736	0.0%	Lufkin	32,569	0.6%
Austin	21,024	0.1%	Odessa	0	0.0%
Beaumont	54,977	0.5%	Paris	75,593	1.1%
Brownwood	15,942	0.5%	Pharr	0	0.0%
Bryan	6,894	0.1%	San Angelo	6,535	0.1%
Childress	68,145	2.5%	San Antonio	38,705	0.2%
Corpus Christi	41,537	0.4%	Tyler	7,392	0.1%
Dallas	190,061	0.4%	Waco	71,486	0.7%
El Paso	5,457	0.1%	Wichita Falls	47,538	0.7%
Fort Worth	27,564	0.1%	Yoakum	8,475	0.1%
Houston	0	0.0%	**Total/Avg.**	**769,887**	**0.3%**

The following figure shows the distribution by district of on-system span-type bridge deck area that is sub-standard for load only.

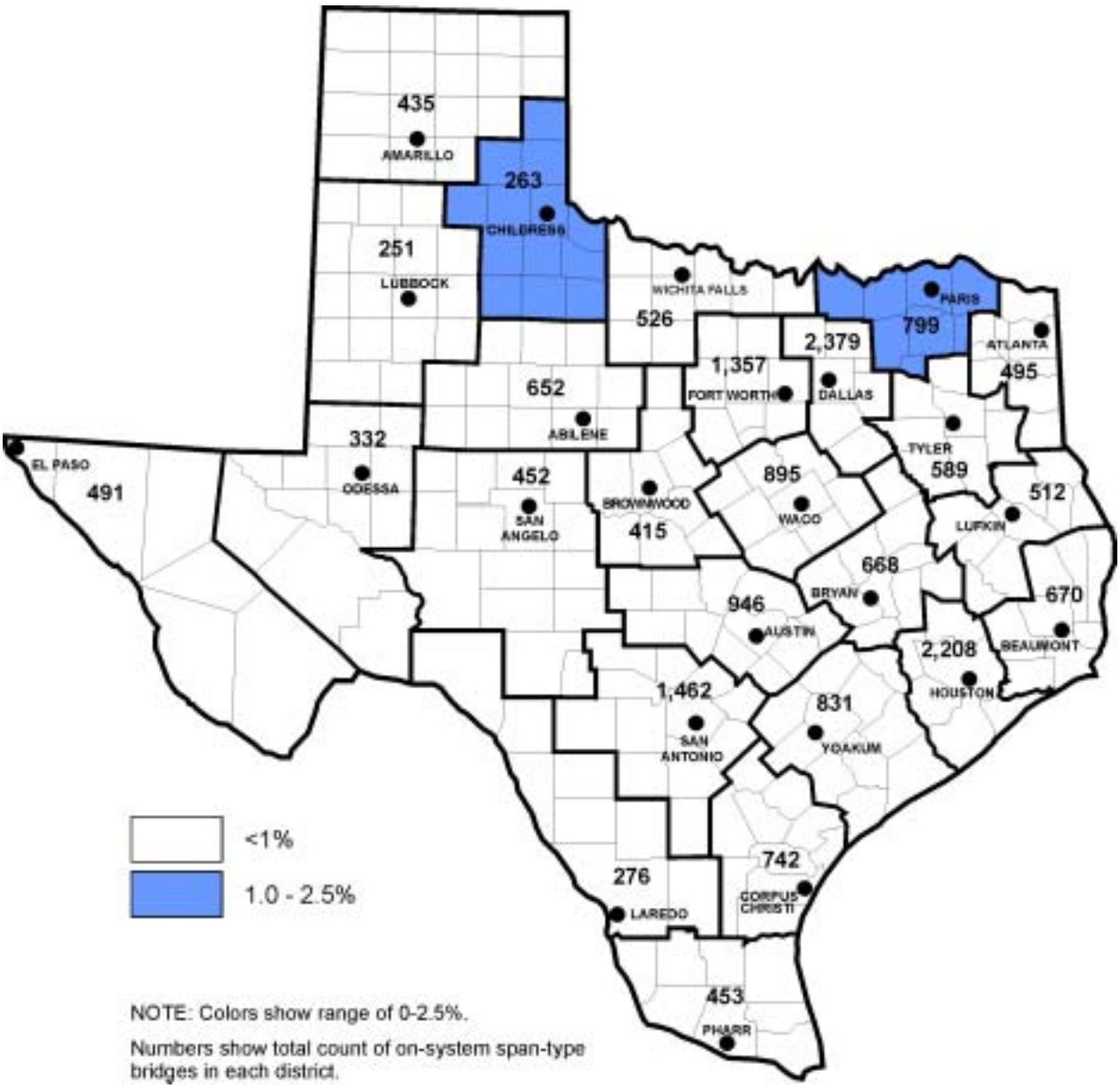


Figure 4-15. Percent of Sub-standard-for-Load-Only On-system Span-type Bridge Deck Area in September 2003 by District

As shown in Figures 4-5 and 4-6, in September 2003 Texas had 1,580 sub-standard-for-load-only off-system span-type bridges, with a total of 2,116,714 sq. ft. of sub-standard-for-load-only deck area. This represents an increase of 180 sub-standard-for-load-only off-system span-type bridges (69 fewer sub-standard-for-load-only off-system span-type bridges, see Table 3-9) and an increase of 77,768 sq. ft.[9] of sub-standard-for-load-only off-system span-type bridge deck area (143,812 fewer sq. ft, see Table 4-16) since September 2002.

The following tables show the number of off-system sub-standard-for-load-only bridges and their deck area for each district.

Table 4-11. Count of Sub-standard-for-Load-Only Off-system Span-type Bridges by District in September 2003

District	Sub-standard-for-Load-Only Bridges		District	Sub-standard-for-Load-Only Bridges	
	Count	% of Off-System Count in District		Count	% of Off-System Count in District
Abilene	59	20.1%	Laredo	20	18.2%
Amarillo	22	31.9%	Lubbock	3	18.8%
Atlanta	6	3.9%	Lufkin	119	24.8%
Austin	28	4.7%	Odessa	0	0.0%
Beaumont	78	23.6%	Paris	84	11.2%
Brownwood	35	13.8%	Pharr	11	3.8%
Bryan	99	19.0%	San Angelo	16	21.1%
Childress	18	10.5%	San Antonio	31	7.2%
Corpus Christi	40	15.8%	Tyler	121	26.0%
Dallas	82	5.7%	Waco	167	19.9%
El Paso	68	43.0%	Wichita Falls	48	13.7%
Fort Worth	86	9.7%	Yoakum	139	14.7%
Houston	200	9.6%	**Total/Avg.**	**1,580**	**13.2%**

[9] See *Report on Texas Bridges as of September 2002.*

Table 4-12. Deck Area of Sub-standard-for-Load-Only Off-system Span-type Bridges by District in September 2003

District	Sub-standard-for-Load-Only Bridges		District	Sub-standard-for-Load-Only Bridges	
	Deck Area (sq. ft.)	% of Off-System Area in District		Deck Area (sq. ft.)	% of Off-System Area in District
Abilene	101,271	18.0%	Laredo	15,410	1.5%
Amarillo	66,203	14.0%	Lubbock	2,540	6.5%
Atlanta	5,785	1.2%	Lufkin	83,377	17.9%
Austin	26,350	0.8%	Odessa	0	0.0%
Beaumont	190,467	26.1%	Paris	62,589	7.8%
Brownwood	34,347	7.5%	Pharr	15,779	0.8%
Bryan	74,999	12.2%	San Angelo	39,424	11.7%
Childress	14,628	5.9%	San Antonio	107,316	3.2%
Corpus Christi	44,830	8.5%	Tyler	133,517	20.9%
Dallas	102,176	0.8%	Waco	212,028	12.2%
El Paso	147,858	17.4%	Wichita Falls	40,369	9.0%
Fort Worth	105,018	2.6%	Yoakum	137,243	9.1%
Houston	353,190	3.0%	**Total/Avg.**	**2,116,714**	**4.3%**

The following figure shows the distribution by district based on deck area of off-system span-type bridges that are sub-standard for load only.

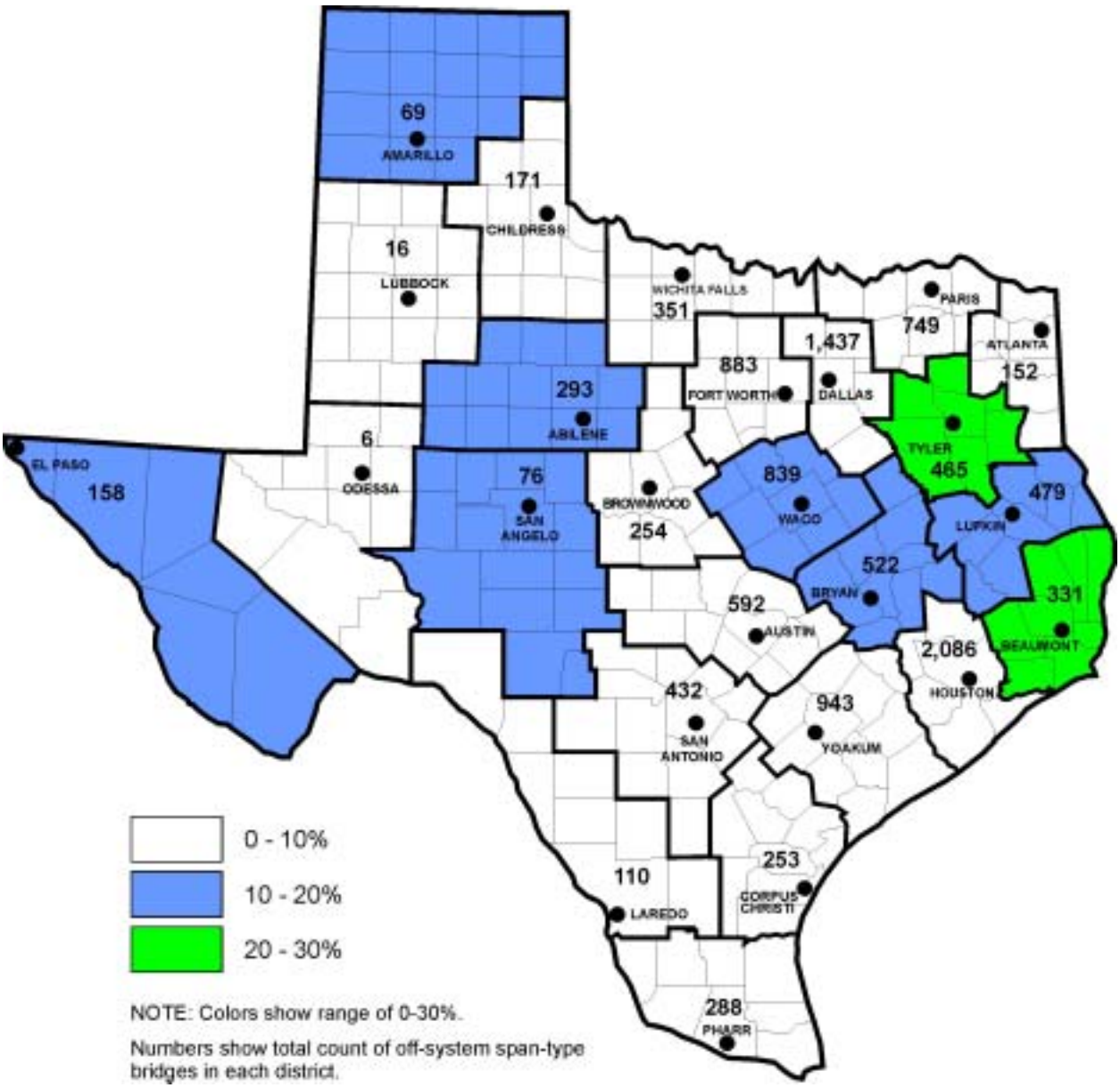


Figure 4-16. Percent of Sub-standard-for-Load-Only Off-system Span-type Bridge Deck Area in September 2003 by District

The following figure shows the distribution by county based on deck area of off-system span-type bridges that are sub-standard for load only.

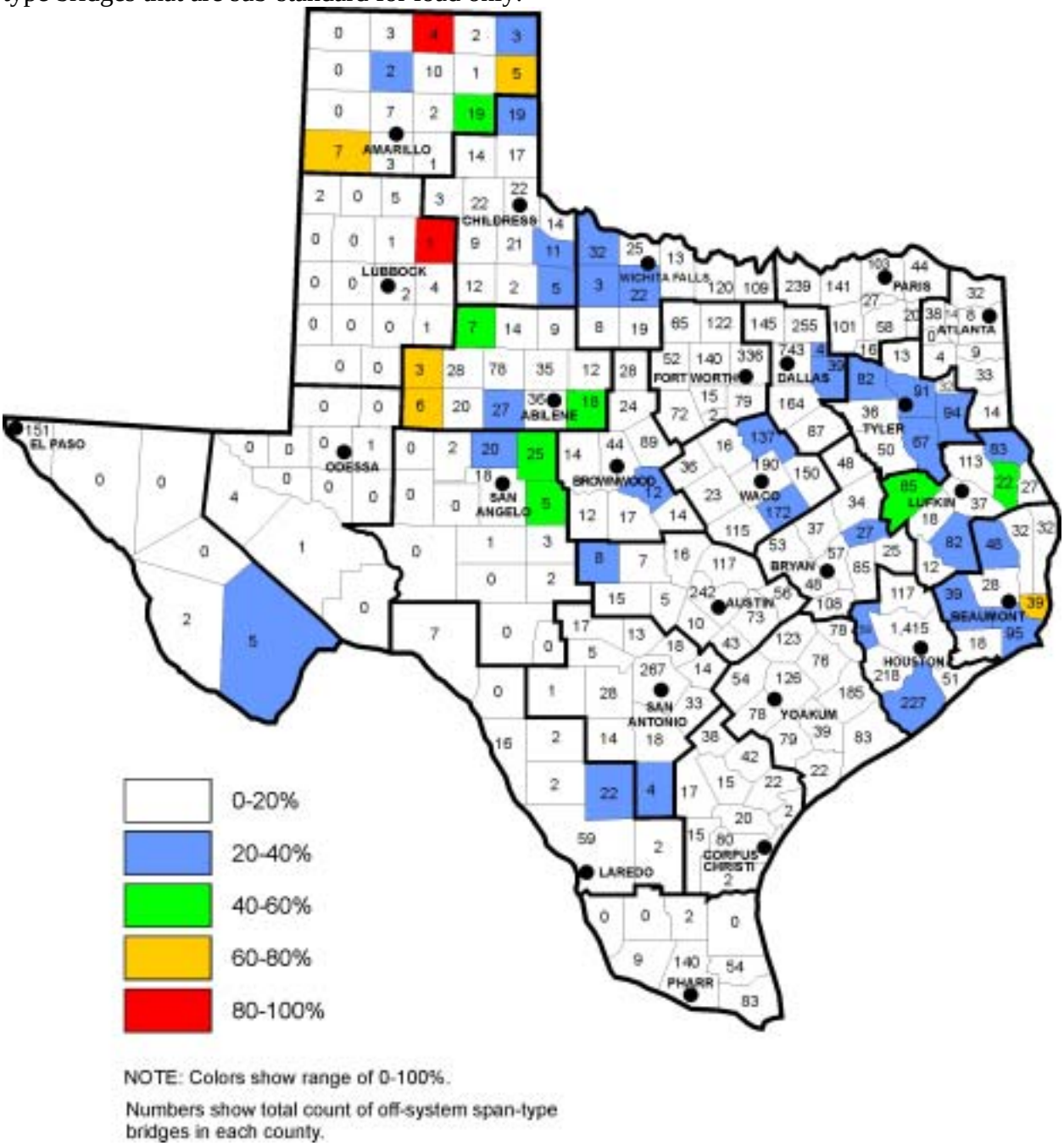


Figure 4-17. Percent of Sub-standard-for-Load-Only Off-system Span-type Bridge Deck Area in September 2003 by County

See Appendix A for information on sub-standard-for-load-only off-system span-type bridges in Texas counties.

Change in Condition of Span-type Bridges during FY 2003. As shown in Table 3-7, during FY 2003 the number of sufficient span-type bridges increased by 2,008 (240 additional sufficient span-type bridges)—1,408 additional sufficient on-system bridges (145 additional sufficient on-system bridges) and 600 additional sufficient off-system bridges (95 additional sufficient off-system bridges).

As shown in Table 3-9, during FY 2003 the number of non-sufficient span-type bridges decreased by 1,868 (95 fewer non-sufficient span-type bridges)—1,245 fewer non-sufficient on-system span-type bridges (18 additional non-sufficient span-type bridges) and 623 fewer non-sufficient off-system span-type bridges (113 fewer span-type bridges). The following figures break down this change in the condition of non-sufficiency by count in FY 2003.

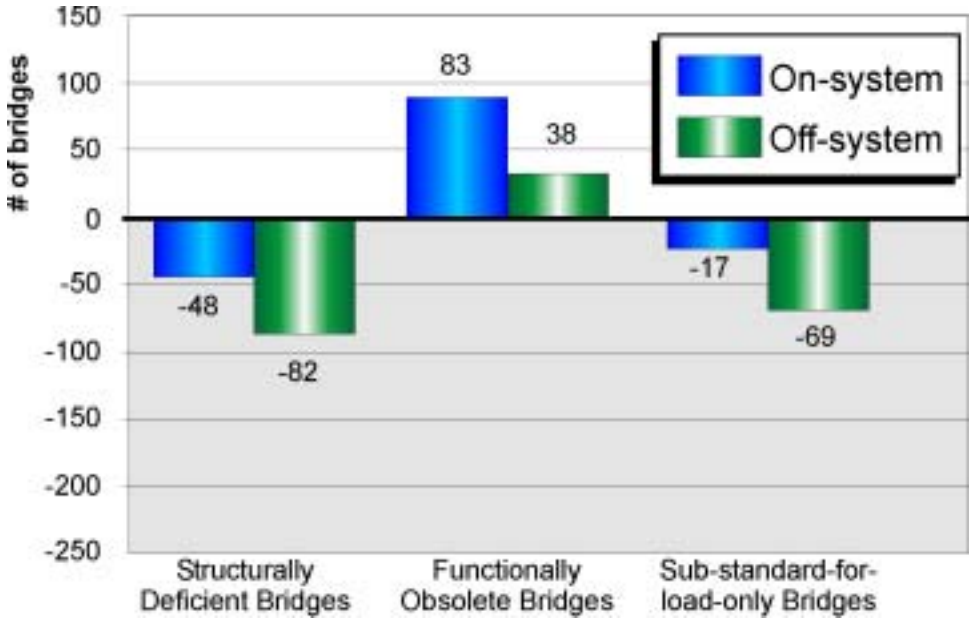


Figure 4-18. Change in Condition of Non-sufficient Span-type Bridges by Count – September 2002 to September 2003

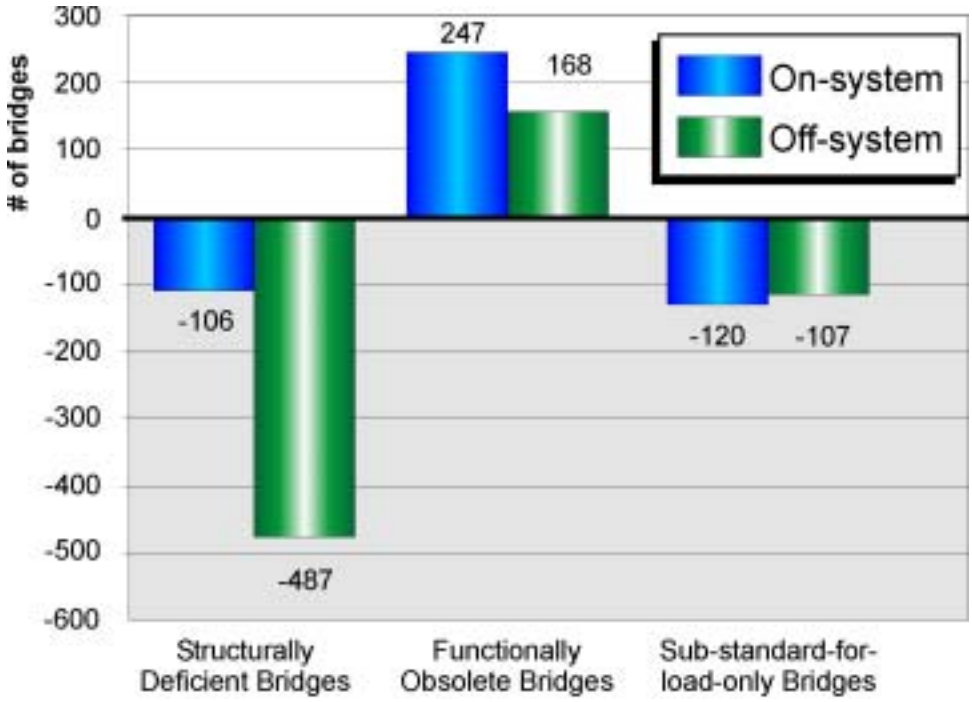


Figure 4-19. Change in Condition of Non-sufficient Span-type Bridges by Count – September 2000 to September 2003

As shown in the following tables, during FY 2003 sufficient bridge deck area increased by 50,155,138 sq. ft. (9,916,492 additional sq. ft.)—43,894,583 sq. ft. on-system and 6,260,555 sq. ft off-system (7,935,839 additional sq. ft. on-system and 1,980,653 additional sq. ft. off-system).

Table 4-13. Change in Condition of Sufficient Span-type Bridge Deck Area from September 2001 to September 2002

Condition	September 2001	September 2002	Change 2001 to 2002
Sufficient On-system Span-type Bridge Deck Area	206,348,068 sq. ft.	210,313,577 sq. ft.	+ 3,965,509 sq. ft.
Sufficient Off-system Bridge Deck Area	19,371,659 sq. ft.	19,816,834 sq. ft.	+ 445,175 sq. ft.
All Sufficient Bridge Deck Area	**225,719,727 sq. ft.**	**230,130,411 sq. ft.**	**+ 4,410,684 sq. ft.**

Table 4-14. Change in Condition of Sufficient Span-type Bridge Deck Area from September 2002 to September 2003

Condition	September 2002 before Adjustment	September 2002 after Adjustment	September 2003	Apparent Change 2002 to 2003	Real Change 2002 to 2003
Sufficient On-system Span-type Bridge Deck Area	210,313,577 sq. ft.	246,272,321 sq. ft.	254,208,160 sq. ft.	+ 43,894,583 sq. ft.	+ 7,935,839 sq. ft.
Sufficient Off-system Bridge Deck Area	19,816,834 sq. ft.	24,096,736 sq. ft	26,077,389 sq. ft.	+ 6,260,555 sq. ft.	+ 1,980,653 sq. ft.
All Sufficient Bridge Deck Area	**230,130,411 sq. ft.**	**270,369,057 sq. ft.**	**280,285,549 sq. ft.**	**+ 50,155,138 sq. ft.**	**+ 9,916,492 sq. ft.**

In FY 2003, 597,170 sq. ft. of non-sufficient span-type deck area was removed from the bridge inventory, as shown in Table 4-16—an additional 787,186 sq. ft of non-sufficient on-system deck area but 190,016 sq. ft. less of off-system deck area. The following figure summarizes change in the condition of non-sufficient bridge deck area from September 2002 to September 2003. Most of the additional non-sufficient bridge deck area was on on-system functionally obsolete bridges.

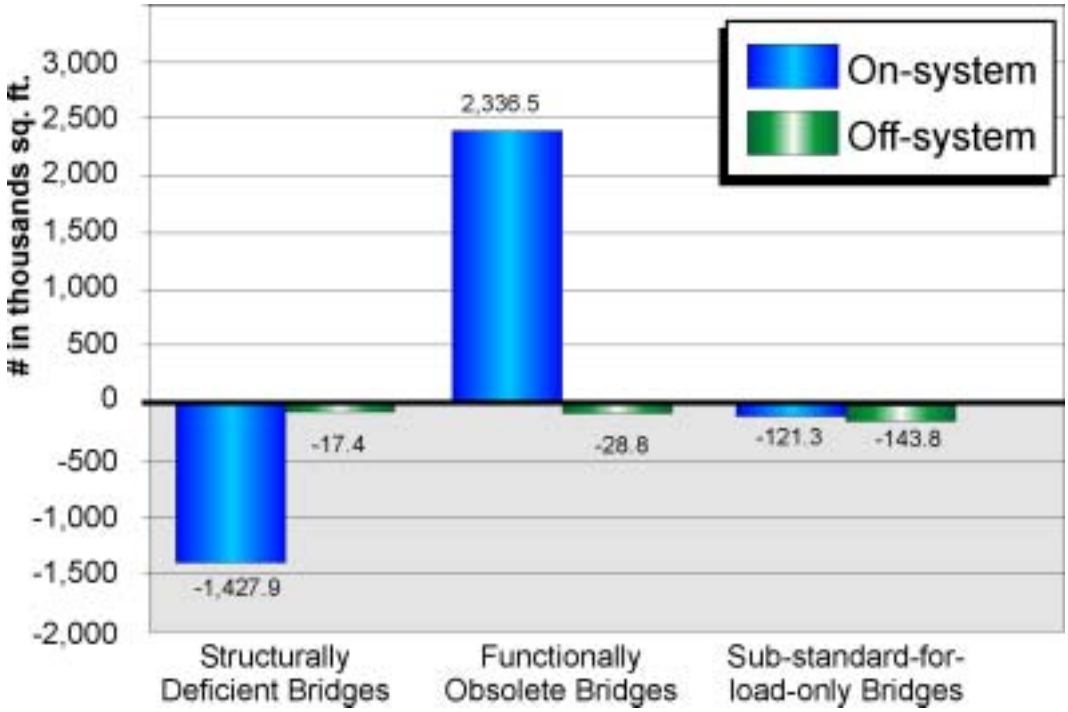


Figure 4-20. Change in Condition of Span-type Bridges by Deck Area – September 2002 to September 2003

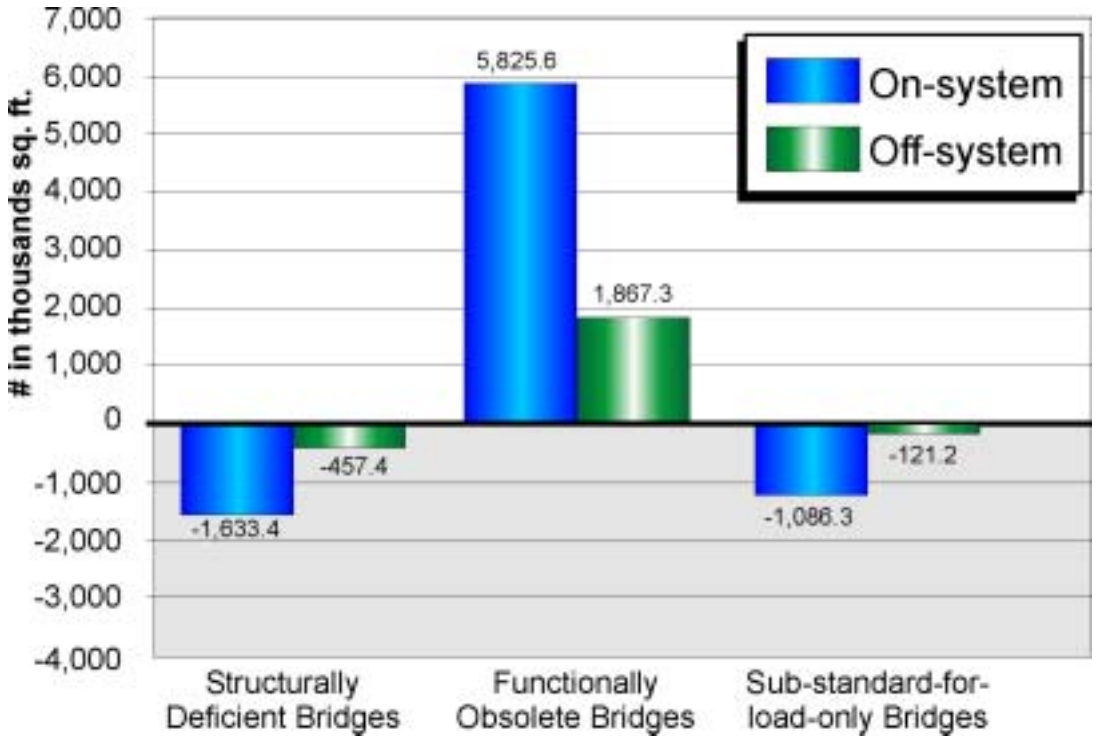


Figure 4-21. Change in Condition of Span-type Bridges by Deck Area – September 2000 to September 2003

The following tables show in more detail the change in condition of non-sufficient bridge deck area from September 2000 to September 2003.

Table 4-15. Change in Condition of Non-sufficient Span-type Bridge Deck Area from September 2000 to September 2002

Condition		September 2001	September 2002	Change
On-system Span Bridges	Structurally Deficient	9,939,349 sq. ft.	9,703,126 sq. ft.	– 236,223 sq. ft.
	Functionally Obsolete	76,780,604 sq. ft.	78,018,216 sq. ft.	+ 1,237,612 sq. ft.
	Sub-standard for Load Only	1,436,678 sq. ft.	866,970 sq. ft.	– 569,708 sq. ft.
Off-system Span Bridges	Structurally Deficient	3,850,795 sq. ft.	3,787,927 sq. ft.	– 62,868 sq. ft.
	Functionally Obsolete	20,622,099 sq. ft.	21,311,692 sq. ft.	+ 689,593 sq. ft.
	Sub-standard for Load Only	2,049,699 sq. ft.	2,038,946 sq. ft.	– 10,753 sq. ft.
All Non-sufficient Bridge Deck Area		**114,679,224 sq. ft.**	**115,726,877 sq. ft.**	**+ 1,047,653 sq. ft.**

Table 4-16. Change in Condition of Non-sufficient Span-type Bridge Deck Area from September 2002 to September 2003

Condition		Sept. 2002 before Adjustment	Sept. 2002 after Adjustment	Sept. 2003	Apparent Change 2002 t o 2003	Real Change 2002 t o 2003
On-system Span Bridges	Structurally Deficient	9,703,126 sq. ft.	9,692,496 sq. ft.	8,264,561 sq. ft.	– 1,438,565 sq. ft.	– 1,427,935 sq. ft.
	Functionally Obsolete	78,018,216 sq. ft.	42,018,837 sq. ft.	44,355,304 sq. ft.	– 33,662,912 sq. ft.	+ 2,336,467 sq. ft.
	Sub-standard for Load Only	866,970 sq. ft.	891,233 sq. ft.	769,887 sq. ft.	– 97,083 sq, ft.	– 121,346 sq. ft.
Off-system Span Bridges	Structurally Deficient	3,787,927 sq. ft.	3,689,134 sq. ft.	3,671,695 sq. ft.	– 116,232 sq. ft.	– 17,439 sq. ft.
	Functionally Obsolete	21,311,692 sq. ft.	16,906,266 sq. ft.	16,877,501 sq. ft.	– 4,434,191 sq. ft.	– 28,765 sq. ft.
	Sub-standard for Load Only	2,038,946 sq. ft.	2,260,526 sq. ft.	2,116,714 sq. ft.	+ 77,768 sq. ft.	– 143,812 sq. ft.
All Non-sufficient Bridge Deck Area		**115,726,877 sq. ft.**	**75,458,492 sq. ft.**	**76,055,662 sq. ft.**	**– 39,671,215 sq. ft.**	**– 597,170 sq. ft.**

In FY 2003, the area of structurally deficient on-system span-type bridge decks decreased by 1,438,565 sq. ft. (1,427,935 fewer sq. ft.), and the area of structurally deficient off-system span-type bridge decks decreased by 116,232 sq. ft. (17,439 fewer sq. ft.). The area of functionally obsolete on-system span-type bridge decks decreased by 33,662,912 sq. ft. (2,336,467 additional sq. ft.), and the area of functionally obsolete off-system span-type bridge decks decreased by 4,434,191 sq. ft. (28,765 fewer sq. ft.). The area of sub-standard-for-load-only on-system span-type bridge decks decreased by 97,083 sq. ft. (121,346 fewer sq. ft.), but the area of sub-standard-for-load-only off-system span-type bridge decks increased by 77,768 sq. ft. (143,812 fewer sq. ft.).

Chapter 5 – Funding

Terms. This report uses the following terms to describe eligibility for funding of bridge projects under the Federal Highway Administration (FHWA) Highway Bridge Replacement and Rehabilitation Program (HBRRP):

- *HBRRP, Category 6-on-system bridge projects:* This is a classification of replacement or rehabilitation work on structurally deficient or functionally obsolete *on*-system bridges that have a sufficiency rating of 80 or less and are, therefore, eligible for specific funding support under the HBRRP.
- *HBRRP, Category 6-off-system bridge projects:* This is a classification of replacement or rehabilitation work on structurally deficient or functionally obsolete *off*-system bridges that have a sufficiency rating of 80 or less and are, therefore, eligible for specific funding support under the HBRRP.
- *Programmed project:* A programmed project is a bridge project that has been identified as eligible for HBRRP funding, prioritized using the Texas Eligible Bridge Selection System (TEBSS), and listed in the current Unified Transportation Program (UTP) as being authorized for letting to contract construction. Programmed projects are scheduled for letting of construction bids for a specific fiscal year.
- *Sufficiency rating:* This is a numerical evaluation of a bridge's structural adequacy and safety, serviceability and functional obsolescence, and essentiality for traffic service. The higher the number the more sufficient the bridge. The rating is used to determine whether a bridge project is eligible for HBRRP rehabilitation or replacement. A sufficiency rating of 80 or less is required to qualify for rehabilitation, and a sufficiency rating of less than 50 is required to qualify for replacement. A structurally deficient bridge with a sufficiency rating between 50 and 80 may qualify for rehabilitation or replacement if justified by engineering or economic analysis.
- *TEBSS:* The Texas Eligible Bridge Selection System provides a formula using scores for bridge attributes to help prioritize bridge replacement and rehabilitation projects to ensure that the most needy bridges are addressed first throughout the state. A TEBSS score is a rating of 0 through 100, with the higher the number the higher the priority.

The HBRRP is administered by the Bridge Division.

HBRRP Funding. A limited amount of HBRRP funds is apportioned to the states from FHWA for the specific purpose of replacing or rehabilitating structurally deficient or functionally obsolete bridges on public highways, roads, and streets. The program applies to deficient existing structures of bridge definition and classification that carry highway vehicular traffic. HBRRP funds can be used on both on-system and off-system bridges.

TxDOT administers the HBRRP program in Texas as follows:

1. TxDOT selects bridge projects for funding according to FHWA eligibility criteria and prioritizes them using its TEBSS.
2. TxDOT authorizes the projects using its Unified Transportation Program (UTP), a ten-year plan for transportation project development.

The following tables show HBRRP projects that were programmed for FY 2003–2005 but not let at the end of FY 2003. (Note that bridge projects may include more than one bridge.)

Table 5-1. HBRRP Projects with Funding Allocated as of September 2003

Program Period	On-system Projects	Off-system Projects	Total
2003-2005	225	722	947

Table 5-2. HBRRP Funds Allocated for Projects as of September 2003*

Program Period	On-system Programmed Amount	Off-system Programmed Amount	Total
2003-2005	$405.77 M	$193.66 M	$599.43 M
* The Texas Transportation Commission restructured the Unified Transportation Plan (UTP) in 2003. Numbers shown reflect adjustments to the FY 2002 UTP.			

On-system Bridge Projects Authorized to Be Let for Construction Bids. TxDOT authorized the following classes of on-system bridge projects to be let in FY 2003:

- HBRRP-funded projects (Category 6-on-system)
- Replacement and rehabilitation projects not funded under HBRRP (that is, these bridges are not necessarily structurally deficient or functionally obsolete, and the projects are funded under other funding categories)
- New-location bridge projects

The following table shows HBRRP on-system bridge projects authorized to be let in Texas districts in FY 2003. Overall as well as in most districts, more on-system bridge projects were authorized to be let in 2003 than in 2002.

Table 5-3. On-System HBRRP Projects Authorized to Be Let, by District

District	2002	2003	District	2002	2003
Abilene	1	5	Laredo	0	1
Amarillo	0	0	Lubbock	0	0
Atlanta	9	7	Lufkin	5	24
Austin	3	14	Odessa	0	0
Beaumont	0	11	Paris	10	3
Brownwood	0	0	Pharr	0	12
Bryan	0	4	San Angelo	0	0
Childress	2	0	San Antonio	2	7
Corpus Christi	1	0	Tyler	6	3
Dallas	9	33	Waco	5	1
El Paso	0	2	Wichita Falls	4	0
Fort Worth	11	11	Yoakum	2	1
Houston	2	6	**Total**	**72**	**145**

Off-System Bridge Projects Authorized to Be Let for Construction Bids. The following classes of off-system bridge projects were funded in FY 2003:

- HBRRP-funded project (Category 6-off-system)
- Replacement and rehabilitation projects not funded under HBRRP (that is, these bridges are not necessarily structurally deficient or functionally obsolete)
- New-location bridge projects

The following table shows HBRRP off-system bridge projects authorized to be let in Texas districts in FY 2003. Overall and in most districts, more off-system bridge projects were programmed in 2003 than in 2002.

Table 5-4. Off-System HBRRP Projects Authorized to Be Let, by District

District	2002	2003	District	2002	2003
Abilene	6	12	Laredo	3	2
Amarillo	2	2	Lubbock	0	0
Atlanta	0	14	Lufkin	6	13
Austin	19	11	Odessa	0	0
Beaumont	5	11	Paris	7	1
Brownwood	13	7	Pharr	6	6
Bryan	7	6	San Angelo	5	1
Childress	5	11	San Antonio	0	13
Corpus Christi	1	22	Tyler	1	4
Dallas	6	65	Waco	12	15
El Paso	0	1	Wichita Falls	16	6
Fort Worth	10	7	Yoakum	13	14
Houston	2	15	**Total**	**145**	**259**

PWP/EMP Option. In 2000, TxDOT initiated its Participation-Waived Project/Equivalent-Match Project (PWP/EMP) program to allow a local government to waive its 10% cost participation requirement in an HBRRP off-system bridge project if it agrees to use an equivalent dollar amount to improve other deficient structures in its jurisdiction.[10] In addition to HBRRP-programmed bridges, EMP work may be performed on bridge structures that are not part of the National Bridge Inventory.

The PWP/EMP program is administered by the Bridge Division.

Other Funding Resources for Off-system Bridge Work. Texas provides additional resources for local governments to facilitate improvement of off-system bridges, and those resources include the following:

- The State Infrastructure Bank (SIB) is a revolving account in the State Highway Fund from which TxDOT may award loans to local governments to fund eligible transportation projects. More information on the SIB is available at http://www.dot.state.tx.us/revexp/sib/sibtoc.htm.
- TxDOT's Economically Disadvantaged Counties (EDC) Program allows TxDOT to adjust a county's matching funds requirements after evaluating the local government's ability to meet the requirement. TxDOT also allows a county participating in the EDC program to use its adjusted participation amount in lieu of all or part of its cost participation in the PWP/EMP program. More information on this program is available in TxDOT's *Bridge Project Development Manual* at http://txdot-manuals/dynaweb/colbridg/bpd/ and in TxDOT's *Transportation Planning Manual* at http://manuals.dot.state.tx.us/dynaweb/coltrsys/pln.
- Counties are beginning to explore bridge funding through Regional Mobility Authorities (RMAs) for toll facilities. More information on RMAs is available on the TxDOT internet site at http://www.dot.state.tx.us/dtf/DraftingtheFuture.pdf.

[10] A November 2001 amendment extended the safety-improvement types of work that can be classified as EMP projects and allowed local governments to perform EMP work in geographically adjacent governmental units.

Chapter 6 – Letting for Construction Bids

Terms. This report uses the following terms to describe letting of bridge projects:

- *Let project:* A let project is one that has been programmed and one for which TxDOT has solicited sealed bids from contractors for work on a highway project and has awarded a contract.
- *National Bridge Inventory (NBI):* The NBI is a database of information supplied by the states and maintained by the FHWA about bridges located on public roads.
- *New-location bridges:* These are bridges built in a location where a bridge did not previously exist.

On-system Bridge Projects Let for Construction Bids in FY 2003. The following table shows on-system bridges in HBRRP projects let in Texas districts in FY 2003. Overall, more on-system bridge projects were let in 2003 than in 2002.

Table 6-1. On-system Bridges in HBRRP Projects Let, by District

District	Bridges		District	Bridges	
	2002	2003		2002	2003
Abilene	1	2	Laredo	0	0
Amarillo	6	2	Lubbock	0	0
Atlanta	11	2	Lufkin	1	10
Austin	7	0	Odessa	0	1
Beaumont	0	1	Paris	15	9
Brownwood	0	0	Pharr	0	10
Bryan	2	1	San Angelo	0	0
Childress	1	2	San Antonio	2	2
Corpus Christi	1	2	Tyler	9	3
Dallas	7	19	Waco	5	7
El Paso	0	0	Wichita Falls	2	2
Fort Worth	8	5	Yoakum	0	3
Houston	1	3	**Total**	**79**	**86**

The following table shows on-system bridges in non-HBRRP bridge projects let in Texas districts in FY 2002 and FY 2003.

Table 6-2. On-system Bridges in Non-HBRRP Projects Let by District

District	2002		2003	
	New-location Bridges	Repl./Rehab.	New-location Bridges	Repl./Rehab.
Abilene	4	6	2	7
Amarillo	2	3	0	0
Atlanta	4	7	0	0
Austin	10	5	77	0
Beaumont	0	2	17	17
Brownwood	1	1	0	4
Bryan	1	1	7	3
Childress	0	7	0	2
Corpus Christi	8	5	12	7
Dallas	10	24	55	36
El Paso	5	0	9	12
Fort Worth	5	5	13	7
Houston	38	21	47	38
Laredo	0	5	8	4
Lubbock	0	1	6	9
Lufkin	3	3	0	0
Odessa	0	0	0	0
Paris	3	10	2	0
Pharr	18	13	8	46
San Angelo	11	26	5	1
San Antonio	26	12	2	15
Tyler	1	8	15	2
Waco	1	8	12	23
Wichita Falls	0	0	0	4
Yoakum	12	13	3	9
Total	**163**	**186**	**300**	**246**

The following table shows the condition of on-system bridges that had replacement or rehabilitation projects let for construction bids in FY 2003.

Table 6-3. On-system Bridges in Replacement and Rehabilitation Projects Let in FY 2003

Condition	HBRRP Funded	Non-HBRRP Funded	Total No. of Repl./Rehab. Bridges	Percent of Repl./Rehab. Bridges
Structurally Deficient	46	1	47	14%
Functionally Obsolete	43	19	62	18%
Not Structurally Deficient or Functionally Obsolete	6*	226	232	68%
Total	**95**	**246**	**341**	**100%**
* Preventive maintenance/special-eligible work approved by FHWA.				

The following table shows funding levels and the number of on-system bridges in projects let in FY 2003.

Table 6-4. All On-system Bridges in Bridge Projects Let in FY 2003

	HBRRP-funded		Non-HBRRP Repl./Rehab.		Non-HBRRP New-location		Total
		% of Total		% of Total		% of Total	
Funding for Bridge Projects Let	$220.5 M	17%	$406.0 M	30%	$697.5 M	53%	$1,324.0 M
Number of Bridges in Projects Let	95	15%	246	38%	300	47%	641
Number of Bridge Projects Let	79	30%	92	36%	86	34%	257

For on-system bridge construction in FY 2003—which included rehabilitation, replacement, and new-location bridges, 47% of the bridges addressed (up from 38% in FY 2002) were new-location bridges. Of the money spent on bridge construction in FY 2003, 53% (down from 57% in FY 2002) was used for new-location bridges.

Off-system Bridge Projects Let for Construction Bids in FY 2003. The following table shows off-system bridges in projects let in Texas districts in FY 2002 and FY 2003. Overall, more off-system bridge projects were let in 2003 than in 2002.

Table 6-5. Off-system Bridges in HBRRP Projects Let, by District

District	Bridges		District	Bridges	
	2002	2003		2002	2003
Abilene	13	2	Laredo	0	1
Amarillo	3	0	Lubbock	0	0
Atlanta	0	5	Lufkin	1	6
Austin	1	4	Odessa	0	0
Beaumont	2	2	Paris	26	20
Brownwood	13	5	Pharr	1	4
Bryan	6	17	San Angelo	0	1
Childress	5	3	San Antonio	3	0
Corpus Christi	0	9	Tyler	1	7
Dallas	0	6	Waco	10	10
El Paso	0	1	Wichita Falls	9	0
Fort Worth	19	13	Yoakum	11	15
Houston	1	3	**Total**	**125**	**134**

The following table shows off-system bridges in non-HBRRP bridge projects let in Texas districts in FY 2003. Except for the HBRRP, TxDOT has limited authority to fund locally owned bridge projects. However, some projects may be selected for construction off the state highway system on roadways with a functional classification greater than a local road or rural minor collector, and these projects are funded under Category 11, District Discretionary.

Table 6-6. Off-system Bridges in Non-HBRRP Projects Let, by District

District	2002		2003	
	New-location Bridges	Repl./Rehab.	New-location Bridges	Repl./Rehab.
Abilene	0	0	0	0
Amarillo	0	0	0	0
Atlanta	0	0	0	0
Austin	0	0	0	1
Beaumont	0	0	0	0
Brownwood	0	0	0	0
Bryan	0	0	0	0
Childress	0	0	0	0
Corpus Christi	0	0	1	0
Dallas	0	0	0	10
El Paso	5	0	1	0
Fort Worth	1	0	1	0
Houston	2	0	2	1
Laredo	0	0	0	0
Lubbock	0	0	0	0
Lufkin	0	0	0	0
Odessa	0	0	0	0
Paris	0	1	0	0
Pharr	0	0	0	1
San Angelo	0	0	0	0
San Antonio	2	2	0	1
Tyler	0	0	0	0
Waco	4	0	0	0
Wichita Falls	0	0	0	0
Yoakum	0	0	0	0
Total	**14**	**3**	**5**	**14**

The following table shows the condition of off-system bridges that had replacement or rehabilitation projects let for construction bids in FY 2003.

Table 6-7. Off-system Bridges in Replacement and Rehabilitation Projects Let in FY 2003

Condition	HBRRP Funded	Non-HBRRP Funded	Total No. of Repl./Rehab. Bridges	Percent of Repl./Rehab. Bridges
Structurally Deficient	122	0	122	82%
Functionally Obsolete	12	4	16	11%
Not Structurally Deficient or Functionally Obsolete	0	10	10	7%
Total	**134**	**14**	**148**	**100%**

The following table shows funding levels and the number of all bridges in projects let in FY 2003.

Table 6-8. All Off-system Bridges in Projects Let in FY 2003

	HBRRP-funded		Non-HBRRP Repl./Rehab.		Non-HBRRP New-location		Total
		% of Total		% of Total		% of Total	
Funding for Bridge Projects Let	$32.4 M	71%	$11.2 M	24%	$2.3 M	5%	$45.9 M
Number of Bridges in Projects Let	134	88%	14	9%	5	3%	153
Number of Bridge Projects Let	130	91%	8	6%	5	3%	143

On-system Bridge Maintenance Projects Awarded in FY 2003. In FY 2003, maintenance (including preventive maintenance) funds for on-system bridges came from two sources:

- TxDOT Maintenance Division's Statewide Maintenance Expenditures—In FY 2003, 2.3% of the $823.3 M maintenance expenditures—the same percentage as in FY 2002—funded bridge maintenance.
- Construction Letting Volume—In FY 2003, 1.5% of the $4.01 B construction letting—the same as in FY 2002—funded bridge maintenance, including HBRRP preventive maintenance projects.

Summary of FY 2003 Funds Spent on On-system Bridges. The following figure shows the distribution of money spent in FY 2003 for on-system bridge maintenance, bridge replacement and rehabilitation, and construction of new-location bridges.

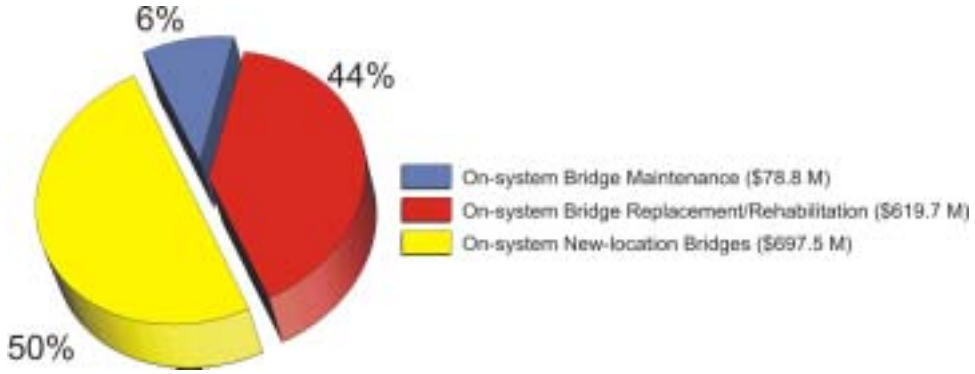


Figure 6-1. Distribution of Funds Spent on On-system Bridges in FY 2003 ($1,396.0 M Total)

FY 2003 PWP/EMP Option. TxDOT's Participation-Waived Project/Equivalent-Match Project (PWP/EMP) program was initiated by TxDOT in FY 2001. The program allows a local government to waive its 10% cost participation requirement in an off-system bridge project if it agrees to use an equivalent dollar amount to improve other deficient structures in its jurisdiction or the jurisdiction of a geographically adjacent or overlapping governmental unit. The project on which the local participation requirement is waived is referred to as the participation-waived

project (PWP), and the project(s) to be performed by the local government in return for the participation waiver is referred to as the equivalent-match project(s) (EMP).

The following table shows PWP/EMP activity in FY 2003 by TxDOT district.

Table 6-9. PWP/EMP Projects in FY 2003 by District

Districts	Number of PWP Agreements Executed	Number of EMP Projects	Number of NBI EMP Projects	Dollars Waived for PWP Projects	Number of PWP Projects Let
Abilene	9	20	2	$198,572	2
Amarillo	0	0	0	$0	0
Atlanta	3	5	0	$140,208	0
Austin	3	4	1	$106,663	0
Beaumont	5	7	4	$185,731	0
Brownwood	6	47	0	$191,100	0
Bryan	6	8	5	$143,770	5
Childress	0	0	0	$0	0
Corpus Christi	13	13	2	$323,466	0
Dallas	28	11	9	$678,965	1
El Paso	0	0	0	$0	0
Fort Worth	4	4	4	$777,610	0
Houston	14	7	6	$599,079	1
Laredo	0	0	0	$0	0
Lubbock	0	0	0	$0	0
Lufkin	3	13	2	$59,820	0
Odessa	0	0	0	$0	0
Paris	20	27	2	$275,044	0
Pharr	0	0	0	$0	0
San Angelo	0	0	0	$0	0
San Antonio	2	2	0	$63,818	0
Tyler	2	3	2	$62,326	0
Waco	3	12	3	$112,785	1
Wichita Falls	0	0	0	$0	0
Yoakum	12	9	2	$269,297	1
Total	**133**	**192**	**44**	**$4,188,254**	**11**

See Appendix B for the FY 2003 PWP/EMP Annual Report, which includes outcomes of the program since it was initiated in 2001.

Chapter 7 – Bridge Needs

Goals. In August 2001, TxDOT adopted a goal that within ten years at least 80% of the bridges in Texas would be in good or better condition. Additionally, TxDOT has adopted a goal to accelerate the upgrade of all structurally deficient on-system bridges, giving highest priority to critically deficient bridges, to eliminate all structurally deficient on-system bridges.

To achieve these goals, TxDOT must improve all existing structurally deficient on-system bridges, improve the other bridges that are currently non-sufficient, and plan improvement of bridges that will become non-sufficient within this goal period.

This report classifies Texas bridges as sufficient (meeting minimum requirements) and non-sufficient, with non-sufficient bridges further classified as structurally deficient, functionally obsolete, or sub-standard for load only:

- Classifications of structurally deficient and functionally obsolete are based on National Bridge Inspection Standards (NBIS) criteria.
- States vary in the loads they allow on bridges, and bridges that fail to meet Texas load limits and are not structurally deficient or functionally obsolete are classified as sub-standard for load only. A sub-standard-for-load-only structure is load-posted or recommended for load-posting.
- Bridges not structurally deficient, functionally obsolete, or sub-standard for load only are classified as sufficient.

Condition of Existing Bridges. Of Texas' 48,457 bridges, 36,409 bridges—75.1%, up from 70.9% in FY 2002—were sufficient in September 2003, as detailed in the following table:

Table 7-1. Sufficient Bridges

Bridge Type	Number of Sufficient Bridges			% of Total Number of Bridges Type		
	2001	2002	2003	2001	2002	2003
On-system Span-type Bridges	13,756	13,799	15,207	72.8%	72.8%	79.6%
On-system Bridge-class Culverts	12,350	12,344	12,458	94.7%	94.5%	95.0%
Off-system Span-type Bridges	4,324	4,491	5,091	35.9%	37.5%	42.6%
Off-system Bridge-class Culverts	3,379	3,540	3,653	82.1%	83.6%	85.0%

Of all on-system bridges in September 2003, 85.9% were sufficient, up from 81.7% in September 2002, and 53.8% of all off-system bridges were sufficient, up from 49.6% in September 2002.

For Texas' 31,054 span-type bridges, evaluation of condition based on count varies somewhat from evaluation of condition based on deck area, as shown in the following table.

Table 7-2. Condition of Span-type Bridges

Condition		% Based on Count			% Based on Deck Area		
		2001	**2002**	**2003**	**2001**	**2002**	**2003**
Sufficient		58.5%	59.2%	65.4%	66.2%	66.6%	78.7%
Non-sufficient	Structurally Deficient	9.9%	9.0%	8.2%	4.0%	3.9%	3.4%
	Functionally Obsolete	26.0%	26.5%	20.7%	28.6%	28.7%	17.2%
	Sub-standard for Load Only	5.5%	5.1%	5.6%	1.0%	0.8%	0.8%

Changes in FY 2003. An adjustment in the data set in September 2002 created an offset in data trends for bridge conditions as shown in the following figure (and in Tables 3-7, 3-8, and 3-9) and resulted in apparent change in condition from FY 2002 to FY 2003 (based on numbers before the data set was adjusted) and real change (based on numbers after the data set was adjusted.

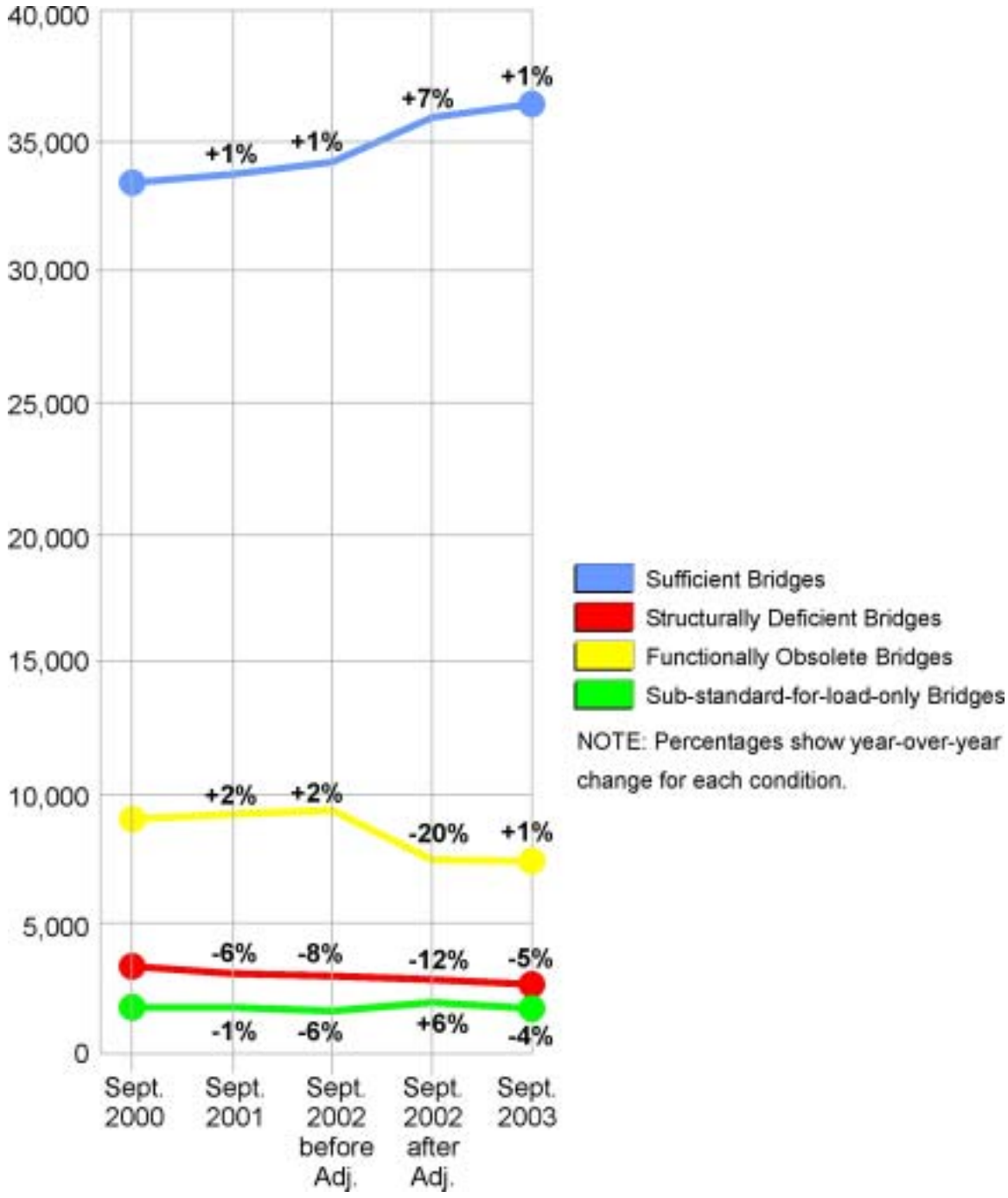


Figure 7-1. Effect of Data Set Adjustment on Bridge Condition Trends

The total number of Texas bridges increased by 296 during FY 2001, by another 132 during FY 2002, and by yet another 241 during FY 2003, as shown in Table 2-1, for a total increase of 669 bridges. As shown in Tables 3-6 and 3-7, the total number of sufficient bridges increased by 403 during FY 2001 and by another 367 during FY 2002. The total number of sufficient bridges increased by another 384 during FY 2003, a total of 1,154, in large part because of the 669 new-location bridges.

The following table summarizes change in the condition of non-sufficient bridges, detailed in Tables 3-8 and 3-9.

Table 7-3. Overall Change in Condition of Non-sufficient Bridges by Count

Condition	September 2000	September 2001	September 2002	September 2003	Change during FY 2001	Change during FY 2002	Real Change during FY 2003
Structurally Deficient	3,394	3,196	2,928	2,678	– 198	– 268	– 127
Functionally Obsolete	9,045	9,206	9,392	7,477	+ 161	+ 186	+ 70
Sub-standard for Load Only	1,816	1,790	1,654	1,835	– 26	– 136	– 70

Two programs particularly helped improve Texas bridges in FY 2003:

- Highway Bridge Replacement and Rehabilitation Program (HBRRP)—TxDOT administers this Federal Highway Administration (FHWA) program, using its Texas Eligible Bridge Selection System (TEBSS) to select and prioritize bridge projects for program funding. TEBSS ensures that bridges in the worst condition have the highest priority for HBRRP funding. As shown in Tables 6-3 and 6-7, in FY 2003 federally funded HBRRP projects let to construction 168 structurally deficient bridges (46 on-system and 122 off-system) and 55 functionally obsolete bridges (43 on-system and 12 off-system), for a total of 223 bridges. In FY 2003 federally funded HBRRP projects let to construction 2 fewer structurally deficient bridges and 21 more functionally obsolete bridges, a total of 19 more bridges, than in FY 2002.
- TxDOT's Participation-Waived Project/Equivalent-Match-Project (PWP/EMP) option allows a local government to waive its required 10% cost participation in an off-system bridge project if it agrees to use an equivalent dollar amount to improve other deficient structures in its jurisdiction or the jurisdiction of a geographically adjacent or overlapping governmental unit. As shown in Table 6-9, the PWP/EMP program supported work on 11 participation-waived structurally deficient or functionally obsolete off-system bridge projects that went to letting in FY 2003. Additional agreements with local governments that were not let for construction bids in FY 2003 were executed during the year to address another 122 participation-waived structurally deficient or functionally obsolete off-system bridge projects in the future. In addition, a total of 44 equivalent-match projects involving bridges that are on the National Bridge Inventory will be improved by local governments.

In September 2000, 33,406 of Texas' 47,788 bridges—69.9%—were sufficient. As of September 2001, the starting point for the ten-year goal, 33,807 of Texas 48,084 bridges—70.3%—were sufficient. In September 2002, 34,174 of Texas 48,216 bridges—70.9%, 0.6% more than in September 2001—were sufficient. In September 2003, 36,409 of Texas' 48,457 bridges—75.1%, 4.2% more than in September 2002—were sufficient. Among on-system bridges 85.9% were sufficient, 4.2% more than the 81.7% of the previous year. And among off-system bridges, 53.8% were sufficient, 4.2% more than the 49.6% of the previous year.

As shown in Tables 6-3 and 6-7, during FY 2003 in all funding categories TxDOT let to construction work to upgrade to sufficient 47 on-system structurally deficient bridges, down 19

from the previous year, and 122 off-system structurally deficient bridges, up 8 from the previous year. TxDOT also let to construction work to upgrade to sufficient 62 on-system functionally obsolete bridges, up 11 from the previous year, and 16 off-system functionally obsolete bridges, up 2 from the previous year.

As shown in Table 3-9, during FY 2003 the number of on-system structurally deficient span-type bridges decreased by 48, and the number of off-system structurally deficient span-type bridges decreased by 82. The number of structurally deficient on-system culverts increased by 5, but the number of structurally deficient off-system culverts decreased by 2. As shown in Figures 4-3 and 4-5, in September 2003 most of the structurally deficient span-type bridges were off-system: 573 on-system and 1,964 off-system. However, as shown in Tables 4-4 and 4-6, most of the structurally deficient deck area was on-system: 8,264,563 sq. ft. on-system and 3,671,693 sq. ft. off-system.

As shown in Table 3-9, during FY 2003 the number of on-system functionally obsolete span-type bridges increased by 83, and the number of off-system functionally obsolete span-type bridges increased by 38. The number of functionally obsolete on-system culverts decreased by 43, and the number of functionally obsolete off-system culverts decreased by 8. As shown in Figures 4-3 and 4-5, in September 2003 the numbers of on- and off-system functionally obsolete span-type bridges were about the same, with 3,137 on-system and 3,277 off-system. As shown in Tables 4-4 and 4-6, most of the functionally obsolete deck area was on-system: 44,355,304 sq. ft. on-system and 16,877,501 sq. ft. off-system.

As shown in Table 3-9, during FY 2003 the number of on-system sub-standard-for-load-only span-type bridges decreased by 17, and the number of off-system sub-standard-for-load-only span-type bridges decreased by 69. The number of sub-standard-for-load-only on-system culverts decreased by 3, but the number of sub-standard-for-load-only off-system culverts increased by 19. As shown in Figures 4-3 and 4-5, in September 2003 most of the sub-standard-for-load-only span-type bridges were off-system: 174 on-system and 1,580 off-system. As shown in Tables 4-10 and 4-12, most of the sub-standard-for-load-only deck area was also off-system: 769,887 sq. ft. on-system and 2,116,714 sq. ft. off-system.

Challenges for Achieving the 80%-Sufficient-by-2011 Goal. Structurally deficient bridges present potential strength issues, functionally obsolete bridges present potential for traffic flow problems and accidents, and sub-standard-for-load-only bridges pose issues for traffic flow. Texas has an aging transportation infrastructure that includes bridges that were not designed for today’s loads and volume of traffic. Traffic volumes are increasing, and trucks are heavier today than many bridges were designed to support. This report tracks annual progress toward the ten-year goal to make at least 80% of Texas bridges good or better by September 2011.

Table 7-4. Bridges that Must Be Improved to Reach the 80%-Sufficient-by-2011 Goal

	2000	2001	2002 (before adjustment)	2002 (after adjustment)	2003
Total Bridges	47,788	48,084	48,216	48,216	48,457
Total Sufficient Bridges	33,406	33,809	34,174	36,025	36,409
Percent Sufficient Bridges	69.9%	70.3%	70.9%	74.7%	75.1%
Total Non-sufficient Bridges*	14,255	14,192	13,974	12,117	11,990
Percent Non-sufficient Bridges	29.8%	29.5%	29.0%	25.1%	24.7%
Net Number of Bridges Improved (not New-location Bridges) during Year	NA	107	233	2,084	143
No. of Bridges/Year to be Improved to Reach 80%-Sufficient-by-2011 Goal	439	466	489	283	295
***** A few bridges are not classified by condition. Bridge records included 83 bridges not classified by condition in September 2001, 68 bridges not classified by condition in September 2002, and 58 bridges not classified by condition in September 2003.					

In September 2000, Texas had 47,788 bridges, and 33,406 (69.9%) of them were sufficient. If the bridge inventory had remained stable—and it actually increased by 296 bridges in FY 2001—TxDOT would have had to decrease its inventory of non-sufficient bridges by 4,825—approximately 439 bridges per year—to reach Commissioner Johnson's goal of at least 80% sufficient bridges by 2011[11]. Although TxDOT increased the total number of sufficient bridges by 403 between September 2000 and September 2001, 296 of those bridges were new-location bridges. In other words, in FY 2001, the year preceding TxDOT's initiative to reach a goal of at least 80% sufficient bridges within ten years, the number of non-sufficient bridges actually decreased by only 107 rather than the decrease of 439 required to meet the goal.

In September 2001, Texas had 48,084 bridges, and 33,809 (70.3%) of them were sufficient. If the bridge inventory had remained the same for the next ten years—and it actually increased by 132 bridges in FY 2002—TxDOT would have had to decrease its inventory of non-sufficient bridges by 4,659—approximately 466 bridges per year—to reach the ten-year goal of 80% sufficient bridges. During FY 2002, the number of non-sufficient bridges actually decreased by 233 rather than the decrease of 466 required to meet the goal.

In September 2002, Texas had 48,216 bridges and 34,174 (70.9%) of them were sufficient. If the bridge inventory had remained stable—and it actually increased by 132 bridges—TxDOT would have had to decrease its inventory of non-sufficient bridges by 4,399—approximately 489 bridges per year—to reach its goal of at least 80% sufficient bridges within the next nine years. During FY 2003, the number of non-sufficient bridges actually decreased by 143 rather than the decrease of 489 required to meet the goal.

As shown in Table 7-4, in September 2003, Texas had 48,457 bridges: 36,409 (75.1%) of them were sufficient and 11,990 of them were non-sufficient, with the remainder not classified by condition. If the bridge inventory remains stable, TxDOT will need to decrease its inventory of non-sufficient bridges by 2,357—approximately 295 bridges per year—to reach its goal of at

[11] Texas Transportation Commission's Transportation Working Group, "Texas Transportation Partnerships: Connecting You to the World," August 2001.

least 80% sufficient bridges within the next eight years. Work is ongoing in FY 2004 to achieve the goal.

Challenges for Eliminating All Structurally Deficient On-system Bridges. In September 2000, Texas had 758 structurally deficient on-system bridges. During FY 2001 the inventory of structurally deficient on-system bridges actually increased by 5, and in September 2001 Texas had 763 structurally deficient on-system bridges. The inventory of structurally deficient on-system bridges decreased by 48 during FY 2002, and in September 2002 Texas had 693 structurally deficient on-system bridges. As shown in Table 3-9, the inventory of structurally deficient on-system bridges decreased by 43 during FY 2003, and in September 2003 Texas had 645 structurally deficient on-system bridges.

Non-sufficient Bridges in FY 2003. Analysis of the condition of Texas bridges during FY 2003 clarifies the challenges for achieving TxDOT's bridge goals.

Structurally Deficient Bridges. During FY 2003, TxDOT let to contract work on 47 on-system structurally deficient bridges[12], as shown in Table 6-3; during that time the total number of all on-system structurally deficient bridges decreased by 43, as shown in Table 3-9. During FY 2003, TxDOT let to contract work on 122 off-system structurally deficient bridges, as shown in Table 6-7, and during that time the total number of all off-system structurally deficient bridges decreased by 84, as shown in Table 3-9.

In FY 2003 the number of structurally deficient on-system span-type bridges decreased by 48, as shown in Table 3-9. The number of structurally deficient on-system bridge-class culverts increased by 5.

In FY 2003 the number of structurally deficient off-system span-type bridges decreased by 82, and the number of structurally deficient off-system bridge-class culverts decreased by 2, as shown in Table 3-9. However, 16.4% of all off-system span type bridges were still structurally deficient in September 2003, as shown in Table 4-3, down from 18.1% in September 2002.

Functionally Obsolete Bridges. During FY 2003, TxDOT let to contract work on 62 on-system functionally obsolete bridges[13], as shown in Table 6-3. However, during that time the total number of all on-system functionally obsolete bridges increased by 40, as shown in Table 3-9. During FY 2003, TxDOT let to contract 16 off-system functionally obsolete bridges, as shown in Table 6-7. During that time the total number of all off-system functionally obsolete bridges increased by 30, as shown in Table 3-9.

In September 2003, 11% of all on-system bridges and 23% of all off-system bridges were functionally obsolete, as shown in Figures 3-3 and 3-4. These proportions are higher for span-type bridges: 16% of all on-system span-type bridges and 27% of all off-system span-type

[12] Many bridges let to contract in FY 2003 were under construction in September 2003, and their improved sufficiency will not be reflected in the Bridge Inspection database until after construction on them is complete.
[13] Many bridges let to contract in FY 2003 were under construction in September 2003, and their improved sufficiency will not be reflected in the Bridge Inspection database until after construction on them is complete.

bridges were functionally obsolete in September 2003, as shown in Figures 4-3 and 4-5. These proportions have not changed significantly since September 2000, and although they are dropping slightly, the total number of functionally obsolete bridges has increased by 417 (161 in FY 2001, 186 in FY 2002, and 70 in FY 2003) and the total number of functionally obsolete span-type bridges has increased by 415 (121 in FY 2001, 173 in FY 2002, and 121 in FY 2003), as shown in Tables 3-8 and 3-9.

Sub-standard-for-Load-Only Bridges. As shown in Table 3-9, in September 2003 Texas had 1,835 sub-standard-for-load-only bridges[14], and nearly 90% of them were off-system span-type bridges. The number of sub-standard-for-load-only off-system span-type bridges increased in FY 2003 from 1,400 to 1,580, and at the end of the year 13% of all off-system span-type bridges were still sub-standard for load only, as shown in Figure 4-5.

Resources Needed. TxDOT is using a number of funding categories in addition to the HBRRP and PWP/EMP programs to facilitate improvement of these bridges, and TxDOT and local governments must work more effectively to improve these bridges in the coming years. TxDOT's Economically Disadvantaged Counties (EDC) Program and State Infrastructure Bank (SIB) also provide resources for local governments trying to improve their off-system bridges.

Of TxDOT funds spent on bridges in FY 2003, 50% (up from 48% in FY 2002) were distributed for bridge maintenance, rehabilitation, and replacement, with remaining funds going for construction of new-location bridges.

Assessments of condition by count (number of bridges) focus on the number of locations where bridges pose structural issues and potential for traffic disruption. By count, more off-system bridges require attention to address structural deficiencies than do on-system bridges. Assessments of condition by deck area, however, provide a clearer view of funding needed to address structural deficiencies. Nearly 70% of the structurally deficient deck area for span-type bridges is on-system, as shown by Tables 4-2 and 4-4.

Access to information about Texas bridges is essential for effective planning and monitoring. TxDOT is developing an automated system to facilitate the management of on- and off-system bridges. The Bridge Management Information System (BMIS), which will be based on AASHTO's bridge management software, Pontis, will allow TxDOT to store and process bridge inspection data, bridge photographs, bridge reports, and other bridge information in a relational database. Information retrieval will be possible in a variety of textual and graphical formats. The retrieved information will facilitate assessment of implications of project decisions, understanding impact of alternative bridge management strategies, forecasting preventive maintenance, and evaluation of bridge performance over time. Information retrieval will be quick, and retrieved information will be easily shared and available in user-friendly formats. This system is much needed, and it will greatly increase efficiency of bridge administration. This system is especially necessary to allow tracking of the condition of Texas bridges at a level of

[14] Adjustment of the data set in September 2002 decreased the number of structurally deficient and functionally obsolete bridges. Because structurally deficient and functionally obsolete are controlling categories for a bridge that is also substandard-for-load, the substandard-for-load-only category became the controlling category for some bridges previously classified as structurally deficient or functionally obsolete.

detail and frequency required to facilitate prioritization of funding to surmount challenges inherent in meeting the goals for improving Texas bridges.

Chapter 8 – Meeting the Challenges

Priorities. To meet its goals to have at least 80% of Texas bridges in good or better condition by August 2011 and to eliminate all structurally deficient on-system bridges, TxDOT is working to improve non-sufficient bridges to sufficient status. TxDOT's primary focus is on accelerating the upgrade of all structurally deficient on-system bridges, giving highest priority to critically deficient bridges[15], in an effort to eliminate all structurally deficient on-system bridges.

In September 2003, Texas had 645 structurally deficient on-system bridges, as shown in Figure 3-3 and Table 3-9, in contrast with 693 in September 2002 and 763 in September 2001. However, the September 2003 statistic was affected by a necessary adjustment in the bridge data set in September 2002 (see Chapter 3), which removed 5 on-system bridges from the list of structurally deficient bridges. TxDOT reduced the inventory of structurally deficient on-system bridges by 43 during FY 2003 and 70 during FY 2002, in contrast with an increase of 5 during FY 2001.

As of September 2003, Texas has 645 structurally deficient on-system bridges and 2,033 structurally deficient off-system bridges in addition to 9,312 otherwise non-sufficient (functionally obsolete or sub-standard for load only) on- and off-system bridges. With all structurally deficient on-system bridges upgraded before August 2011, Texas will still need to upgrade an average additional 214 structurally deficient off-system and functionally obsolete and sub-standard-for-load-only on- and off-system bridges each year to remain on track to reach a total of at least 80% sufficient bridges by August 2011.

Current Bridge Inventory	48,457
80% of Current Bridge Inventory	38,766
Currently Sufficient Bridges	36,409
All Currently Structurally Deficient On-system Bridges	645
No. of Additional Bridges to Be Improved over 8 Years to Reach 80%-sufficient Goal	1,712
Average Number of Bridges/Year to Be Improved over 8 Years to Reach 80%-sufficient Goal	295

The number and condition of Texas bridges change constantly, affecting estimates for work needed to achieve goals. TxDOT will continue its assessment of work needed in the coming years to meet its goals to have no structurally deficient on-system bridges and to have at least 80% of Texas bridges in good or better condition by August 2011.

For FY 2003, $162.2M FHWA Highway Bridge Replacement and Rehabilitation Program (HBRRP) funding was apportioned for work on structurally deficient and functionally obsolete bridges (sub-standard-for-load-only bridges are not eligible for HBRRP funding). As shown in the following table, as of September 2003, $138.8M of the available funds had been obligated for use on structurally deficient and functionally obsolete bridges.

[15] Critically deficient bridges are the bridges classified as structurally deficient that are in most need of attention.

Table 8-1. HBRRP Funding Available and Used

Year	$ Apportioned for Year*	$ Obligated during Year	% Obligated during Year
FY 2001	$172.8M	$154.7M	89.5%
FY 2002	$189.7M	$160.3M	84.5%
FY 2003	$162.2M	$138.8M	85.6%
FY 2004	$122.7M**		

* Funds apportioned each year must be obligated within the following 4 years.
** Temporary allocation as of April 2004 due to reauthorization bill.

Although TxDOT has always obligated all HBRRP funds within the required four years of their apportionment, in the coming years TxDOT will particularly focus on obligating all available HBRRP funds each year.

Strategy. To meet its goals to have no structurally deficient on-system bridges and to have at least 80% of Texas bridges in good or better condition by August 2011, TxDOT is following a plan for improving Texas bridges that is adjusted annually after review of the effect of the preceding year's work on progress toward the goal.

Plan. The basic steps of the plan to achieve the goals are given below:

- Develop and distribute an annual report to identify progress toward achieving the goals.
  Status: This report serves that purpose.
- Use the annual report to adjust the resources each year as needed.
  Status: Data compiled during development of the first issue of this report, *Report on Texas Bridges as of September 2001,* supported development of a new prioritization for on-system HBRRP bridges, currently in early stages of development, of bridge work for the 12-month letting schedule:
  Priority 1 – Critically deficient structurally deficient land-locking bridges
  Priority 2 – Remaining critically deficient structurally deficient bridges
  Priority 3 – Structurally deficient land-locking bridges
  Priority 4 – Remaining structurally deficient bridges
  Priority 5 – Functionally obsolete land-locking bridges
  Priority 6 – Remaining functionally obsolete bridges
- Produce completed bridge plans, specifically targeting those structurally deficient on-system bridges that are critically deficient, that will be available to substitute for delayed HBRRP projects.
  Status: TxDOT's Bridge Division and districts continue to target these bridges for plan development.
- Produce completed bridge plans, targeting structurally deficient bridges that will be available to substitute for delayed HBRRP projects.
  Status: TxDOT's Bridge Division, with support from the Bridge Division bridge design consultant pool, continues to work with districts to develop a backlog of projects to substitute for delayed HBRRP projects.

- Develop a process to substitute HBRRP projects for those that are delayed for letting to construction in order to contract 100 percent of HBRRP program funds on the 12-month HBRRP letting schedule each fiscal year.
  Status: TxDOT's Bridge Division is working with the districts to schedule HBRRP projects in the first eight months of each fiscal year to allow sufficient time to substitute for projects that are delayed to letting.
- Use other categories of funding in addition to HBRRP funds to achieve the goals.
  Status: TxDOT's Bridge Division and districts continue to emphasize using additional categories of funding for bridge replacement and rehabilitation.
- Standardize additional bridge elements and make them available on the Internet in order to simplify design, speed construction, and lower costs.
  Status: During FY 2003, TxDOT updated existing online standard drawings for interior trestle bents for I-beams. TxDOT also published new online standard drawings for prestressed box beam bridges, prestressed concrete I-beam bridges, cast-in-place concrete slab span bridges, and prestressed concrete slab span bridges. In FY 2004 TxDOT will publish new online standard drawings for the following bridge elements and systems: T77 bridge railing, culverts and drainage, prestressed concrete I-beam bridges, and steel beam bridges.
- Increase the use of cluster contracts that address two or more deficient bridges within a reasonable geographical area. This should lower overall design and construction costs.
  Status: TxDOT's Bridge Division and districts continue to emphasize using cluster contracts.
- Use maintenance funds to address on-system bridge problems that result in low condition ratings to prevent non-structurally deficient on-system bridges from becoming structurally deficient.
  Status: As shown in Figure 6-1, TxDOT distributed $78.8 M for on-system bridge maintenance in FY 2003, compared to $57.2 M in FY 2002 and $57.6 M in FY 2001.

The following information is included in this annual report to assist in achieving the goals:

- The number of structurally deficient on-system bridges that must be upgraded in the coming years to remain on track for accelerating the elimination of all structurally deficient bridges.

  As of September 2003, there were 645 (in contrast with 693 in September 2002 and 758 in September 2001) structurally deficient on-system bridges.

- The number of structurally deficient on-system bridges and the number of functionally obsolete and sub-standard-for-load-only bridges that must be upgraded in the coming year to remain on track for reaching a total of at least 80% sufficient bridges by August 2011.

  Assuming that the bridge inventory remains stable, its condition does not further deteriorate, and all structurally deficient on-system bridges will be upgraded, as of September 2003 an average additional 214 structurally deficient off-system bridges and functionally obsolete and sub-standard-for-load-only on- and off-system bridges must be upgraded each year to remain on track for reaching a total of at least 80% sufficient bridges by August 2011.

- The amount of HBRRP funding available and the amount of HBRRP funding obligated in the current year for work on structurally deficient and functionally obsolete bridges.

  See Table 8-1.

- Recommendations for additional funding sources as needed to accelerate the elimination of all structurally deficient on-system bridges.

  Because of the limited amount of HBRRP funding, the use of additional funding categories is needed.

Innovations and Best Practices in FY 2003. To facilitate use of available funding to upgrade non-sufficient bridges as efficiently as possible, TxDOT will annually review innovations and best practices of the preceding year.

The following programs made funds available or facilitated their use to upgrade non-sufficient bridges:

- Highway Bridge Replacement and Rehabilitation Program (HBRRP)—TxDOT has administered this Federal Highway Administration (FHWA) program since its beginning in 1970. Initial funding participation requirements for both on- and off-system bridges were 80% federal and 20% state or local; however, in 1995 TxDOT initiated a change in participation requirements for off-system bridges to pay half of the local government's share (80% federal, 10% state, 10% local). For bridge work contracted in FY 2003, this program provided funding for 168 (in contrast with 170 in FY 2002 and 146 in FY 2001) structurally deficient and 55 (in contrast with 34 in FY 2002 and 46 in FY 2001) functionally obsolete bridges, for a total of 223 of the 247 deficient or obsolete bridges (90.3%) that were awarded contracts in FY 2003.
- State Infrastructure Bank (SIB)—Effective September 1997, this revolving account in the State Highway Fund allows TxDOT to award loans to local governments to support eligible transportation projects.
- Economically Disadvantaged Counties (EDC) Program—Effective January 1998, this program allows TxDOT to adjust a county's matching funds requirements after evaluating the local government's ability to meet the requirement. TxDOT also allows a county participating in the EDC program to use its adjusted participation amount in lieu of all or part of its 10% cost participation in the PWP/EMP program.
- Participation-Waived Project/Equivalent-Match Project (PWP/EMP) Program—Effective August 2000, revised local participation requirements allow 100% federal/state funding of a TxDOT-programmed "participation-waived project (PWP)" in cases where the local government agrees to perform structural improvement work on other "equivalent-match project (EMP)" deficient bridges with a dollar amount at least equal to their normal 10% project match. State design standards apply to the PWPs while the EMP design standards are determined by the local governments based on local needs and standards.
- Simplified local government participation—Effective August 2000, when the local government elects to participate in the cost of a TxDOT-programmed bridge, instead of being responsible for 10% of actual costs, the local government is now responsible for 10% of the estimated project cost at the time the agreement with TxDOT is signed. The local

government no longer participates in subsequent overruns in costs of program-eligible project items unless it lets and manages the project.

- Regional Mobility Authorities (RMAs)—Counties are beginning to explore bridge funding through RMAs for toll facilities.

Appendix A – Structurally Deficient, Functionally Obsolete, and Sub-standard-for-Load-Only Off-system Span-Type Bridges by County

For counts and deck area of structurally deficient on-system span-type bridges by district, see Tables 4-1 and 4-2. The following tables provide counts and deck area of off-system structurally deficient, functionally obsolete, and sub-standard-for-load-only bridges in September 2003.

Table A-1. Count of Structurally Deficient Off-system Span-type Bridges by County, Showing Percent, in September 2003

County	Structurally Deficient Bridges		County	Structurally Deficient Bridges		County	Structurally Deficient Bridges	
	Count	% of Off-system Count		Count	% of Off-system Count		Count	% of Off-system Count
Anderson	16	32.0%	Coke	4	20.0%	Frio	2	14.3%
Andrews	0	0%	Coleman	5	35.7%	Gaines	0	0.0%
Angelina	6	16.2%	Collin	13	5.1%	Galveston	12	23.5%
Aransas	0	0%	Collings-worth	10	58.8%	Garza	1	100.0%
Archer	9	40.9%	Colorado	6	7.9%	Gillespie	1	6.7%
Armstrong	0	0.0%	Comal	3	16.7%	Glasscock	0	0.0%
Atascosa	4	22.2%	Comanche	24	27.0%	Goliad	4	9.5%
Austin	25	32.1%	Concho	0	0.0%	Gonzales	29	53.7%
Bailey	0	0%	Cooke	13	11.9%	Gray	4	21.1%
Bandera	1	20.0%	Coryell	11	47.8%	Grayson	21	8.8%
Bastrop	14	19.2%	Cottle	1	4.8%	Gregg	1	3.1%
Baylor	2	66.7%	Crane	0	0.0	Grimes	12	14.1%
Bee	1	6.7%	Crockett	0	0.0	Guadalupe	1	7.1%
Bell	8	7.0%	Crosby	1	25.0%	Hale	0	0.0%
Bexar	6	2.2%	Culberson	0	0.0%	Hall	10	45.5%
Blanco	0	0.0%	Dallam	0	0.0%	Hamilton	16	44.4%
Borden	0	0.0%	Dallas	19	2.6%	Hansford	0	0.0%
Bosque	5	31.3%	Dawson	0	0.0%	Hardeman	6	42.9%
Bowie	10	31.3%	Deaf Smith	1	14.3%	Hardin	9	32.1%
Brazoria	43	18.9%	Delta	16	59.3%	Harris	19	1.3%
Brazos	5	8.8%	Denton	38	26.2%	Harrison	8	24.2%
Brewster	0	0.0%	Dewitt	15	19.2%	Hartley	0	0.0%
Briscoe	1	33.3%	Dickens	7	58.3%	Haskell	1	11.1%
Brooks	0	0.0%	Dimmit	0	0.0%	Hays	3	30.0%
Brown	7	15.9%	Donley	7	50.0%	Hemphill	2	40.0%
Burleson	10	20.8%	Duval	0	0.0%	Henderson	4	11.1%
Burnet	1	6.3%	Eastland	7	29.2%	Hidalgo	5	3.6%
Caldwell	11	25.6%	Ector	0	0.0%	Hill	47	34.3%
Calhoun	4	18.2%	Edwards	0	0.0%	Hockley	0	0.0%
Callahan	7	38.9%	Ellis	18	11.0%	Hood	1	6.7%
Cameron	9	10.8%	El Paso	4	2.6%	Hopkins	28	48.3%
Camp	0	0.0%	Erath	20	27.8%	Houston	12	14.1%
Carson	1	50.0%	Falls	49	28.5%	Howard	0	0.0%
Cass	2	25.0%	Fannin	57	40.4%	Hudspeth	0	0.0%
Castro	0	0.0%	Fayette	12	9.8%	Hunt	46	45.5%
Chambers	1	5.6%	Fisher	39	50.0%	Hutchinson	3	30.0%
Cherokee	15	22.4%	Floyd	0	0.0%	Irion	0	0.0%
Childress	3	13.6%	Foard	0	0.0%	Jack	15	23.1%
Clay	6	46.2%	Fort Bend	10	4.6%	Jackson	7	17.9%
Cochran	0	0.00%	Franklin	4	20.0%	Jasper	5	15.6%
			Freestone	24	50.0%	Jeff Davis	0	0.0%

Table A-1 (Continued). Count of Structurally Deficient Off-system Span-type Bridges by County, Showing Percent, in September 2003

County	Structurally Deficient Bridges		County	Structurally Deficient Bridges		County	Structurally Deficient Bridges	
	Count	% of Off-system Count		Count	% of Off-system Count		Count	% of Off-system Count
Jefferson	4	4.2%	Mills	5	41.7%	Sherman	0	0.0%
Jim Hogg	0	0.0%	Mitchell	6	30.0%	Smith	15	16.5%
Jim Wells	2	13.3%	Montague	20	16.7%	Somervell	1	50.0%
Johnson	5	6.3%	Montgom-ery	8	6.8%	Starr	1	11.1%
Jones	17	48.6%	Moore	1	50.0%	Stephens	0	0.0%
Karnes	16	42.1%	Morris	3	21.4%	Sterling	1	50.0%
Kaufman	12	30.8%	Motley	4	44.4%	Stonewall	6	42.9%
Kendall	2	15.4%	Nacog-doches	4	3.5%	Sutton	0	0.0%
Kenedy	0	0.0%	Navarro	26	29.9%	Swisher	3	60.0%
Kent	3	42.9%	Newton	8	25.0%	Tarrant	35	10.4%
Kerr	3	17.6%	Nolan	5	18.5%	Taylor	7	19.4%
Kimble	0	0.0%	Nueces	31	38.8%	Terrell	0	0.0%
King	2	100.0%	Ochiltree	1	50.0%	Terry	0	0.0%
Kinney	0	0.0%	Oldham	0	0.0%	Throckmor-ton	1	12.5%
Kleberg	0	0.0%	Orange	4	10.3%	Titus	24	63.2%
Knox	2	40.0%	Palo Pinto	15	28.8%	Tom Green	1	5.6%
Lamar	42	40.8%	Panola	0	0.0%	Travis	8	3.3%
Lamb	0	0.0%	Parker	33	23.6%	Trinity	7	38.9%
Lampasas	1	7.1%	Parmer	0	0.0%	Tyler	11	22.9%
LaSalle	2	9.1%	Pecos	0	0.0%	Upshur	1	25.0%
Lavaca	6	4.8%	Polk	25	30.5%	Upton	0	0.0%
Lee	4	7.1%	Potter	1	14.3%	Uvalde	0	0.0%
Leon	5	14.7%	Presidio	1	50.0%	Val Verde	0	0.0%
Liberty	12	30.8%	Rains	4	25.0%	Van Zandt	33	40.2%
Limestone	59	39.3%	Randall	0	0.0%	Victoria	4	5.1%
Lipscomb	1	33.3%	Reagan	0	0.0%	Walker	6	24.0%
Live Oak	8	47.1%	Real	0	0.0%	Waller	5	8.6%
Llano	2	28.6%	Red River	24	54.5%	Ward	0	0.0%
Loving	0	0.0%	Reeves	1	25.0%	Washing-ton	21	19.4%
Lubbock	0	0.0%	Refugio	0	0.0%	Webb	1	1.7%
Lynn	0	0.0%	Roberts	0	0.0%	Wharton	25	13.5%
Madison	7	25.9%	Robertson	19	51.4%	Wheeler	3	15.8%
Marion	6	66.7%	Rockwall	0	0.0%	Wichita	6	24.0%
Martin	0	0.0%	Runnels	6	24.0%	Wilbarger	17	53.1%
Mason	3	37.5%	Rusk	5	5.3%	Willacy	3	5.6%
Matagorda	2	2.4%	Sabine	14	51.9%	Williamson	13	11.1%
Maverick	5	31.3%	San Augustine	10	45.5%	Wilson	15	45.5%
McCulloch	0	0.0%	San Jacinto	3	25.0%	Winkler	0	0.0%
McLennan	32	16.8%	San Patricio	2	10.0%	Wise	43	35.2%
McMullen	1	25.0%	San Saba	6	35.3%	Wood	5	38.5%
Medina	6	21.4%	Schleicher	1	100.0%	Yoakum	0	0.0%
Menard	2	66.7%	Scurry	5	17.9%	Young	7	36.8%
Midland	0	0.0%	Shackel-ford	6	50.0%	Zapata	0	0.0%
Milam	15	28.3%	Shelby	32	38.6%	Zavala	1	50.0%

Table A-2. Structurally Deficient Off-system Span-type Bridge Deck Area in Sq. Ft. by County, Showing Percent, in September 2003

County	Structurally Deficient Bridges		County	Structurally Deficient Bridges		County	Structurally Deficient Bridges	
	Deck Area (Sq. Ft.)	% of Off-system Deck Area		Deck Area (Sq. Ft.)	% of Off-system Deck Area		Deck Area (Sq. Ft.)	% of Off-system Deck Area
Anderson	13,598.0	19.1%	Coryell	16,163.8	28.1%	Hardeman	30,051.0	76.7%
Andrews	0	0.0%	Cottle	880.2	5.3%	Hardin	6,779.0	10.0%
Angelina	5,020.7	13.0%	Crane	0	0.0%	Harris	142,765.4	1.5%
Aransas	0	0.0%	Crockett	0	0.0%	Harrison	6,316.7	7.1%
Archer	6,392.5	30.3%	Crosby	1,088.0	14.8%	Hartley	0	0.0%
Armstrong	0	0.0%	Culberson	0.0	0.0%	Haskell	543.0	4.1%
Atascosa	2,225.2	12.5%	Dallam	0.0	0.0%	Hays	4,907.4	14.2%
Austin	19,041.6	23.0%	Dallas	468,676.8	4.8%	Hemphill	6,512.0	27.8%
Bailey	0	0.0%	Dawson	0	0.0%	Henderson	2,326.1	8.3%
Bandera	738.1	12.7%	Deaf Smith	1,280.0	16.5%	Hidalgo	5,415.9	0.4%
Bastrop	10,168.1	6.8%	Delta	12,231.2	48.3%	Hill	47,228.2	29.8%
Baylor	1,020.6	66.9%	Denton	45,088.6	7.2%	Hockley	0	0.0%
Bee	1,440.0	3.5%	Dewitt	15,854.5	12.3%	Hood	1,740.0	5.6%
Bell	23,716.7	5.8%	Dickens	8,315.8	56.8%	Hopkins	14,901.3	39.9%
Bexar	60,902.9	2.1%	Dimmit	0	0.0%	Houston	7,350.0	13.0%
Blanco	0	0.0%	Donley	8,181.6	30.9%	Howard	0	0.0%
Borden	0	0.0%	Duval	0	0.0%	Hudspeth	0	0.0%
Bosque	10,437.0	20.4%	Eastland	3,461.8	12.0%	Hunt	27,445.7	32.8%
Bowie	10,667.4	5.0%	Ector	0	0.0%	Hutchinson	49,307.8	78.3%
Brazoria	96,842.2	16.0%	Edwards	0	0.0%	Irion	0	0.0%
Brazos	4,774.4	4.2%	Ellis	18,911.9	7.6%	Jack	8,460.2	15.2%
Brewster	0	0.0%	El Paso	40,063.0	4.8%	Jackson	9,131.8	12.4%
Briscoe	480.0	12.7%	Erath	16,082.2	19.7%	Jasper	3,766.7	7.1%
Brooks	0	0.0%	Falls	60,180.9	32.7%	Jeff Davis	0	0.0%
Brown	6,783.0	7.2%	Fannin	42,283.0	43.2%	Jefferson	10,738.3	3.5%
Burleson	6,915.8	13.0%	Fayette	10,346.9	6.9%	Jim Hogg	0	0.0%
Burnet	1,632.0	5.7%	Fisher	50,722.7	64.2%	Jim Wells	4,816.3	17.3%
Caldwell	10,063.6	9.3%	Floyd	0	0.0%	Johnson	15,994.1	9.0%
Calhoun	2,368.0	7.7%	Foard	0	0.0%	Jones	23,630.3	42.2%
Callahan	5,099.7	18.1%	Fort Bend	14,650.4	2.2%	Karnes	25,218.4	36.0%
Cameron	7,654.5	1.5%	Franklin	4,758.9	31.8%	Kaufman	13,691.3	40.8%
Camp	0	0.0%	Freestone	17,219.8	48.6%	Kendall	2,273.7	4.5%
Carson	1,136.8	59.2%	Frio	906.0	7.0%	Kenedy	0	0.0%
Cass	1,452.9	7.1%	Gaines	0.0	0.0%	Kent	4,186.5	43.4%
Castro	0	0.0%	Galveston	358,774.5	68.3%	Kerr	8,708.4	13.4%
Chambers	1,165.6	2.4%	Garza	552.0	100.0%	Kimble	0	0.0%
Cherokee	11,600.4	21.0%	Gillespie	327.6	0.9%	King	2,936.0	100.0%
Childress	3,496.5	5.9%	Glasscock	0	0.0%	Kinney	0	0.0%
Clay	5,700.3	37.5%	Goliad	3,453.0	4.4%	Kleberg	0.0	0.0%
Cochran	0	0.0%	Gonzales	24,000.6	42.4%	Knox	1,500.0	40.6%
Coke	3,006.0	9.6%	Gray	5,886.0	13.3%	Lamar	38,523.4	41.8%
Coleman	17,699.6	36.0%	Grayson	17,010.9	4.3%	Lamb	0.0	0.0
Collin	10,713.8	0.5%	Gregg	4,590.1	3.3%	Lampasas	2,385.8	6.4%
Collings-worth	9,842.9	62.9%	Grimes	9,849.1	13.2%	LaSalle	2,040.8	8.6%
Colorado	3,986.5	3.5%	Guadalupe	821.1	2.8%	Lavaca	8,798.2	3.8%
Comal	14,106.0	13.4%	Hale	0	0.0%	Lee	3,566.8	5.2%
Comanche	18,720.2	15.5%	Hall	8,479.0	36.1%	Leon	3,850.8	15.1%
Concho	0	0.0%	Hamilton	41,260.4	42.8%	Liberty	8,957.6	17.9%
Cooke	10,877.4	7.1%	Hansford	0	0.0%	Limestone	42,676.9	33.8%

Table A-2 (Continued). Structurally Deficient Off-system Span-type Bridge Deck Area in Sq. Ft. by County, Showing Percent, in September 2003

County	Structurally Deficient Bridges		County	Structurally Deficient Bridges		County	Structurally Deficient Bridges	
	Deck Area (Sq. Ft.)	% of Off-system Deck Area		Deck Area (Sq. Ft.)	% of Off-system Deck Area		Deck Area (Sq. Ft.)	% of Off-system Deck Area
Lipscomb	640.0	33.3%	Parker	34,319.1	16.2%	Tarrant	411,616.3	12.6%
Live Oak	20,465.7	68.4%	Parmer	0	0.0%	Taylor	6,004.0	4.1%
Llano	1,249.0	20.4%	Pecos	0	0.0%	Terrell	0.0	0.0%
Loving	0	0.0%	Polk	15,521.3	21.9%	Terry	0.0	0.0%
Lubbock	0	0.0%	Potter	86,316.6	37.3%	Throckmor-ton	780.0	6.5%
Lynn	0	0.0%	Presidio	386.4	41.5%	Titus	17,781.0	19.5%
Madison	3,977.8	23.0%	Rains	2,553.2	26.7%	Tom Green	15,523.2	7.4%
Marion	3,954.2	32.6%	Randall	0	0.0%	Travis	17,604.6	0.8%
Martin	0	0.0%	Reagan	0	0.0%	Trinity	3,614.6	16.3%
Mason	5,173.9	60.5%	Real	0	0.0%	Tyler	7,859.7	20.4%
Matagorda	3,802.0	2.4%	Red River	17,189.9	40.9%	Upshur	384.0	1.9%
Maverick	3,157.9	1.6%	Reeves	629.2	14.4%	Upton	0	0.0%
McCulloch	0	0.0%	Refugio	0.0	0.0%	Uvalde	0	0.0%
McLennan	55,523.7	8.5%	Roberts	0.0	0.0%	Val Verde	0	0.0%
McMullen	588.0	25.3%	Robertson	24,713.4	46.1%	Van Zandt	19,987.9	36.9%
Medina	7,661.7	19.0%	Rockwall	0	0.0%	Victoria	7,139.6	3.2%
Menard	14,025	87.7%	Runnels	7,063.7	11.6%	Walker	2,716.4	9.0%
Midland	0	0.0%	Rusk	4,535.3	3.6%	Waller	4,791.6	5.4%
Milam	18,591.4	18.4%	Sabine	15,696.2	52.0%	Ward	0	0.0%
Mills	5,367.0	25.6%	San Augustine	7,040.0	45.7%	Washing-ton	23,542.5	21.2%
Mitchell	8,741.6	20.2%	San Jacinto	1,094.0	5.0%	Webb	1,025.0	0.2%
Montague	14,648.3	13.6%	San Patricio	1,650.0	4.4%	Wharton	26,119.5	10.1%
Montgom-ery	28,603.8	6.7%	San Saba	11,986.2	36.5%	Wheeler	1,826.4	9.5%
Moore	1,300.0	72.8%	Schleicher	4,402.0	100.0%	Wichita	4,867.1	6.3%
Morris	3,657.1	19.9%	Scurry	4,440.0	8.9%	Wilbarger	15,028.9	46.7%
Motley	2,420.4	17.7%	Shackel-ford	11,084.0	45.4%	Willacy	4,088.5	3.2%
Nacog-doches	10,078.0	6.5%	Shelby	16,003.8	28.9%	Williamson	16,701.2	4.1%
Navarro	16,812.4	15.3%	Sherman	0	0.0%	Wilson	28,822.3	40.6%
Newton	8,814.7	26.0%	Smith	16,268.1	11.1%	Winkler	0	0.0%
Nolan	4,051.8	15.2%	Somervell	2,520.0	60.1%	Wise	32,862.2	22.1%
Nueces	57,222.3	30.0%	Starr	15,096.0	26.2%	Wood	4,683.8	26.5%
Ochiltree	1,342.0	23.8%	Stephens	0	0.0%	Yoakum	0	0.0%
Oldham	0	0.0%	Sterling	1,248.0	69.6%	Young	4,997.6	17.1%
Orange	8,849.3	7.0%	Stonewall	6,730.7	17.4%	Zapata	0	0.0%
Palo Pinto	13,312.5	23.3%	Sutton	0	0.0%	Zavala	2,528.0	82.4%
Panola	0	0.0%	Swisher	2,997.8	50.5%			

Table A-3. Count of Functionally Obsolete Off-system Span-type Bridges by County, Showing Percent, in September 2003

County	Functionally Obsolete Bridges		County	Functionally Obsolete Bridges		County	Functionally Obsolete Bridges	
	Count	% of Off-system Count		Count	% of Off-system Count		Count	% of Off-system Count
Anderson	9	18.0%	Coryell	2	8.7%	Hardeman	0	0.0%
Andrews	0	0.0%	Cottle	3	14.3%	Hardin	2	7.1%
Angelina	5	13.5%	Crane	0	0.0%	Harris	767	54.2%
Aransas	1	50.0%	Crockett	0	0.0%	Harrison	3	9.1%
Archer	3	13.6%	Crosby	1	25.0%	Hartley	0	0.0%
Armstrong	1	100.0%	Culberson	0	0.0%	Haskell	2	22.2%
Atascosa	1	5.6%	Dallam	0	0.0%	Hays	6	60.0%
Austin	13	16.7%	Dallas	376	50.6%	Hemphill	1	20.0%
Bailey	0	0.0%	Dawson	0	0.0%	Henderson	14	38.9%
Bandera	3	60.0%	Deaf Smith	1	14.3%	Hidalgo	40	28.6%
Bastrop	13	17.8%	Delta	1	3.7%	Hill	24	17.5%
Baylor	0	0.0%	Denton	47	32.4%	Hockley	0	0.0%
Bee	5	33.3%	Dewitt	16	20.5%	Hood	4	26.7%
Bell	31	27.0%	Dickens	1	8.3%	Hopkins	7	12.1%
Bexar	101	37.8%	Dimmit	1	50.0%	Houston	8	9.4%
Blanco	1	20.0%	Donley	1	7.1%	Howard	2	33.3%
Borden	0	0.0%	Duval	0	0.0%	Hudspeth	0	0.0%
Bosque	1	6.3%	Eastland	3	12.5%	Hunt	5	5.0%
Bowie	10	31.3%	Ector	0	0.0%	Hutchinson	2	20.0%
Brazoria	46	20.3%	Edwards	0	0.0%	Irion	0	0.0%
Brazos	17	29.8%	Ellis	43	26.2%	Jack	17	26.2%
Brewster	1	20.0%	El Paso	22	14.6%	Jackson	9	23.1%
Briscoe	0	0.0%	Erath	17	23.6%	Jasper	15	46.9%
Brooks	1	50.0%	Falls	32	18.6%	Jeff Davis	0	0.0%
Brown	8	18.2%	Fannin	33	23.4%	Jefferson	25	26.3%
Burleson	10	20.8%	Fayette	59	48.0%	Jim Hogg	0	0.0%
Burnet	2	12.5%	Fisher	13	16.7%	Jim Wells	2	13.3%
Caldwell	12	27.9%	Floyd	0	0.0%	Johnson	14	17.7%
Calhoun	3	13.6%	Foard	1	9.1%	Jones	5	14.3%
Callahan	1	5.6%	Fort Bend	70	32.1%	Karnes	3	7.9%
Cameron	13	15.7%	Franklin	5	25.0%	Kaufman	13	33.3%
Camp	0	0.0%	Freestone	10	20.8%	Kendall	3	23.1%
Carson	1	50.0%	Frio	7	50.0%	Kenedy	0	0.0%
Cass	1	12.5%	Gaines	0	0.0%	Kent	1	14.3%
Castro	0	0.0%	Galveston	12	23.5%	Kerr	5	29.4%
Chambers	1	5.6%	Garza	0	0.0%	Kimble	1	50.0%
Cherokee	19	28.4%	Gillespie	5	33.3%	King	0	0.0%
Childress	1	4.5%	Glasscock	0	0.0%	Kinney	0	0.0%
Clay	0	0.0%	Goliad	7	16.7%	Kleberg	0	0.0%
Cochran	0	0.0%	Gonzales	8	14.8%	Knox	0	0.0%
Coke	3	15.0%	Gray	2	10.5%	Lamar	16	15.5%
Coleman	4	28.6%	Grayson	47	19.7%	Lamb	0	0.0%
Collin	60	23.5%	Gregg	7	21.9%	Lampasas	3	21.4%
Collings-worth	2	11.8%	Grimes	17	20.0%	LaSalle	0	0.0%
Colorado	10	13.2%	Guadalupe	5	35.7%	Lavaca	56	44.4%
Comal	8	44.4%	Hale	1	100.0%	Lee	16	28.6%
Comanche	13	14.6%	Hall	1	4.5%	Leon	6	17.6%
Concho	1	20.0%	Hamilton	3	8.3%	Liberty	3	7.7%
Cooke	20	18.3%	Hansford	0	0.0%	Limestone	45	30.0%

Table A-3 (Continued). Count of Functionally Obsolete Off-system Span-type Bridges by County, Showing Percent, in September 2003

County	Functionally Obsolete Bridges		County	Functionally Obsolete Bridges		County	Functionally Obsolete Bridges	
	Count	% of Off-system Count		Count	% of Off-system Count		Count	% of Off-system Count
Lipscomb	0	0.0%	Parker	31	22.1%	Tarrant	129	38.4%
Live Oak	4	23.5%	Parmer	0	0.0%	Taylor	10	27.8%
Llano	2	28.6%	Pecos	0	0.0%	Terrell	0	0.0%
Loving	0	0.0%	Polk	20	24.4%	Terry	0	0.0%
Lubbock	0	0.0%	Potter	1	14.3%	Throckmor-ton	0	0.0%
Lynn	0	0.0%	Presidio	1	50.0%	Titus	4	10.5%
Madison	9	33.3%	Rains	6	37.5%	Tom Green	3	16.7%
Marion	2	22.2%	Randall	1	33.3%	Travis	57	23.6%
Martin	0	0.0%	Reagan	0	0.0%	Trinity	0	0.0%
Mason	1	12.5%	Real	0	0.0%	Tyler	9	18.8%
Matagorda	3	3.6%	Red River	5	11.4%	Upshur	0	0.0%
Maverick	2	12.5%	Reeves	1	25.0%	Upton	0	0.0%
McCulloch	4	33.3%	Refugio	4	18.2%	Uvalde	0	0.0%
McLennan	36	18.9%	Roberts	1	100.0%	Val Verde	4	57.1%
McMullen	2	50.0%	Robertson	5	13.5%	Van Zandt	23	28.0%
Medina	10	35.7%	Rockwall	0	0.0%	Victoria	27	34.2%
Menard	1	33.3%	Runnels	7	28.0%	Walker	2	8.0%
Midland	0	0.0%	Rusk	28	29.8%	Waller	5	8.6%
Milam	13	24.5%	Sabine	5	18.5%	Ward	0	0.0%
Mills	0	0.0%	San Augustine	0	0.0%	Washing-ton	25	23.1%
Mitchell	3	15.0%	San Jacinto	1	8.3%	Webb	31	52.5%
Montague	24	20.0%	San Patricio	8	40.0%	Wharton	11	5.9%
Montgom-ery	26	22.2%	San Saba	4	23.5%	Wheeler	1	5.3%
Moore	0	0.0%	Schleicher	0	0.0%	Wichita	5	20.0%
Morris	6	42.9%	Scurry	0	0.0%	Wilbarger	0	0.0%
Motley	1	11.1%	Shackel-ford	2	16.7%	Willacy	3	5.6%
Nacog-doches	11	9.7%	Shelby	9	10.8%	Williamson	22	18.8%
Navarro	20	23.0%	Sherman	0	0.0%	Wilson	2	6.1%
Newton	9	28.1%	Smith	15	16.5%	Winkler	0	0.0%
Nolan	3	11.1%	Somervell	0	0.0%	Wise	28	23.0%
Nueces	7	8.8%	Starr	5	55.6%	Wood	1	7.7%
Ochiltree	0	0.0%	Stephens	6	21.4%	Yoakum	0	0.0%
Oldham	0	0.0%	Sterling	1	50.0%	Young	4	21.1%
Orange	8	20.5%	Stonewall	2	14.3%	Zapata	0	0.0%
Palo Pinto	8	15.4%	Sutton	0	0.0%	Zavala	0	0.0%
Panola	6	42.9%	Swisher	0	0.0%			

Table A-4. Functionally Obsolete Off-system Span-type Bridge Deck Area in Sq. Ft. by County, Showing Percent, in September 2003

County	Functionally Obsolete Bridges		County	Functionally Obsolete Bridges		County	Functionally Obsolete Bridges	
	Deck Area (Sq. Ft.)	% of Off-system Deck Area		Deck Area (Sq. Ft.)	% of Off-system Deck Area		Deck Area (Sq. Ft.)	% of Off-system Deck Area
Anderson	7,630.9	10.7%	Coryell	1,451.5	2.5%	Hardeman	0	0.0%
Andrews	0.0	0.0%	Cottle	1,597.0	9.6%	Hardin	6,241.9	9.2%
Angelina	4,573.6	11.9%	Crane	0.0	0.0%	Harris	5,351,990.1	57.1%
Aransas	3,332.0	73.1%	Crockett	0.0	0.0%	Harrison	2,561.0	2.9%
Archer	1,845.5	8.8%	Crosby	792.0	10.8%	Hartley	0	0.0%
Armstrong	945.4	100.0%	Culberson	0.0	0.0%	Haskell	1,009.6	7.6%
Atascosa	581.0	3.3%	Dallam	0.0	0.0%	Hays	18,511.9	53.4%
Austin	11,816.3	14.3%	Dallas	4,151,785.5	42.4%	Hemphill	789.6	3.4%
Bailey	0.0	0.0%	Dawson	0.0	0.0%	Henderson	11,000.2	39.3%
Bandera	1,826.8	31.4%	Deaf Smith	1,128.0	14.5%	Hidalgo	134,689.5	10.4%
Bastrop	14,010.4	9.3%	Delta	1,152.0	4.5%	Hill	21,853.7	13.8%
Baylor	0.0	0.0%	Denton	167,936.6	27.0%	Hockley	0	0.0%
Bee	4,104.1	9.9%	Dewitt	15,655.3	12.1%	Hood	5,919.6	19.0%
Bell	170,808.0	41.7%	Dickens	480.0	3.3%	Hopkins	4,865.1	13.0%
Bexar	1,141,496.2	38.5%	Dimmit	372.0	9.7%	Houston	4,484.5	7.9%
Blanco	2,850.0	15.9%	Donley	551.8	2.1%	Howard	1,760.0	5.5%
Borden	0	0.0%	Duval	0	0.0%	Hudspeth	0	0.0%
Bosque	706.5	1.4%	Eastland	1,897.3	6.6%	Hunt	2,859.0	3.4%
Bowie	157,326.4	73.7%	Ector	0	0.0%	Hutchinson	2,123.8	3.4%
Brazoria	104,663.6	17.2%	Edwards	0	0.0%	Irion	0	0.0%
Brazos	21,834.3	19.4%	Ellis	48,018.4	19.3%	Jack	9,579.8	17.3%
Brewster	1,242.0	7.8%	El Paso	129,459.6	15.6%	Jackson	12,733.2	17.2%
Briscoe	0	0.0%	Erath	17,025.6	20.8%	Jasper	13,672.7	25.6%
Brooks	1,065.0	40.2%	Falls	25,491.2	13.9%	Jeff Davis	0.0	0.0%
Brown	22,186.3	23.4%	Fannin	19,037.7	19.5%	Jefferson	75,455.2	24.3%
Burleson	6,317.5	11.9%	Fayette	66,092.3	44.4%	Jim Hogg	0.0	0.0%
Burnet	1,153.1	4.0%	Fisher	9,426.8	11.9%	Jim Wells	3,727.5	13.4%
Caldwell	12,885.0	11.8%	Floyd	0	0.0%	Johnson	20,301.3	11.4%
Calhoun	3,503.4	11.4%	Foard	687.6	6.3%	Jones	3,314.4	5.9%
Callahan	787.2	2.8%	Fort Bend	302,168.1	44.4%	Karnes	7,596.2	10.9%
Cameron	83,251.8	16.7%	Franklin	2,433.3	16.2%	Kaufman	9,998.5	29.8%
Camp	0	0.0%	Freestone	9,026.2	25.5%	Kendall	1,999.2	3.9%
Carson	782.8	40.8%	Frio	4,376.2	33.9%	Kenedy	0	0.0%
Cass	456.0	2.2%	Gaines	0	0.0%	Kent	1,416.0	14.7%
Castro	0	0.0%	Galveston	78,265.5	14.9%	Kerr	13,739.4	21.1%
Chambers	902.4	1.8%	Garza	0	0.0%	Kimble	1,563.3	38.1%
Cherokee	16,726.1	30.3%	Gillespie	13,209.1	35.8%	King	0	0.0%
Childress	980.0	1.7%	Glasscock	0	0.0%	Kinney	0	0.0%
Clay	0	0.0%	Goliad	9,455.1	12.1%	Kleberg	0	0.0%
Cochran	0	0.0%	Gonzales	5,160.6	9.1%	Knox	0	0.0%
Coke	3,498.8	11.2%	Gray	8,475.0	19.2%	Lamar	10,849.0	11.8%
Coleman	17,300.8	35.2%	Grayson	61,929.8	15.7%	Lamb	0	0.0%
Collin	602,925.4	26.4%	Gregg	12,277.5	8.9%	Lampasas	3,913.0	10.4%
Collings-worth	1,494.6	9.5%	Grimes	17,303.5	23.2%	LaSalle	0	0.0%
Colorado	9,008.7	8.0%	Guadalupe	5,732.2	19.8%	Lavaca	63,620.7	27.7%
Comal	48,341.7	46.0%	Hale	3,150.0	100.0%	Lee	13,963.7	20.3%
Comanche	10,021.6	8.3%	Hall	624.0	2.7%	Leon	4,063.2	15.9%
Concho	825.6	12.9%	Hamilton	4,130.5	4.3%	Liberty	2,077.6	4.2%
Cooke	20,638.6	13.5%	Hansford	0	0.0%	Limestone	31,741.7	25.1%

Table A-4 (Continued). Functionally Obsolete Off-system Span-type Bridge Deck Area in Sq. Ft. by County, Showing Percent, in September 2003

County	Functionally Obsolete Bridges		County	Functionally Obsolete Bridges		County	Functionally Obsolete Bridges	
	Deck Area (Sq. Ft.)	% of Off-system Deck Area		Deck Area (Sq. Ft.)	% of Off-system Deck Area		Deck Area (Sq. Ft.)	% of Off-system Deck Area
Lipscomb	0	0.0%	Parker	35,456.5	16.7%	Tarrant	1,383,359.4	42.2%
Live Oak	4,469.5	14.9%	Parmer	0	0.0%	Taylor	29,953.1	20.3%
Llano	1,496.6	24.5%	Pecos	0	0.0%	Terrell	0	0.0%
Loving	0	0.0%	Polk	26,278.0	37.0%	Terry	0	0.0%
Lubbock	0	0.0%	Potter	78,030.0	33.7%	Throckmor-ton	0	0.0%
Lynn	0	0.0%	Presidio	545.4	58.5%	Titus	5,880.6	6.5%
Madison	5,014.0	29.0%	Rains	3,191.8	33.4%	Tom Green	43,132.0	20.4%
Marion	5,616.0	46.3%	Randall	2,170.0	3.4%	Travis	577,714.0	25.4%
Martin	0	0.0%	Reagan	0	0.0%	Trinity	0	0.0%
Mason	733.5	8.6%	Real	0	0.0%	Tyler	5,832.5	15.1%
Matagorda	6,216.7	4.0%	Red River	2,989.8	7.1%	Upshur	0	0.0%
Maverick	67,862.7	35.4%	Reeves	400.0	9.1%	Upton	0	0.0%
McCulloch	9,547.6	39.3%	Refugio	9,228.0	23.1%	Uvalde	0	0.0%
McLennan	123,066.9	18.9%	Roberts	815.9	100.0%	Val Verde	127,838.2	87.5%
McMullen	979.8	42.2%	Robertson	7,710.7	14.4%	Van Zandt	11,860.3	21.9%
Medina	10,294.6	25.5%	Rockwall	0	0.0%	Victoria	104,586.1	46.9%
Menard	1,960	12.3%	Runnels	9,376.9	15.4%	Walker	970.0	3.2%
Midland	0	0.0%	Rusk	21,620.5	17.1%	Waller	11,081.7	12.4%
Milam	13,460.0	13.3%	Sabine	4,191.8	13.9%	Ward	0	0.0%
Mills	0	0.0%	San Augustine	0	0.0%	Washing-ton	20,244.3	18.2%
Mitchell	4,316.0	10.0%	San Jacinto	426.0	1.9%	Webb	93,123.9	14.5%
Montague	17,559.2	16.4%	San Patricio	11,105.6	29.6%	Wharton	12,668.0	4.9%
Montgom-ery	87,287.0	20.6%	San Saba	2,426.4	7.4%	Wheeler	1,062.0	5.5%
Moore	0	0.0%	Schleicher	0	0.0%	Wichita	22,349.7	28.9%
Morris	11,043.8	60.2%	Scurry	0	0.0%	Wilbarger	0	0.0%
Motley	1,000.0	7.3%	Shackel-ford	2,727.0	11.2%	Willacy	2,368.0	1.9%
Nacog-doches	10,983.5	7.1%	Shelby	4,996.0	9.0%	Williamson	46,381.0	11.3%
Navarro	19,405.8	17.7%	Sherman	0	0.0%	Wilson	1,235.0	1.7%
Newton	5,345.9	15.7%	Smith	15,005.4	10.2%	Winkler	0	0.0%
Nolan	1,693.9	6.4%	Somervell	0	0.0%	Wise	19,270.2	13.0%
Nueces	31,809.8	16.7%	Starr	36,849.9	64.0%	Wood	920.4	5.2%
Ochiltree	0	0.0%	Stephens	3,503.0	7.0%	Yoakum	0	0.0%
Oldham	0	0.0%	Sterling	546.0	30.4%	Young	7,232.8	24.8%
Orange	18,785.1	14.8%	Stonewall	2,815.7	7.3%	Zapata	0	0.0%
Palo Pinto	6,950.8	12.2%	Sutton	0	0.0%	Zavala	0	0.0%
Panola	8,746.7	43.5%	Swisher	0	0.0%			

Table A-5. Count of Sub-standard-for-Load-Only Off-system Span-type Bridges by County, Showing Percent, in September 2003

County	Sub-standard-for-Load-Only Bridges		County	Sub-standard-for-Load-Only Bridges		County	Sub-standard-for-Load-Only Bridges	
	Count	% of Off-system Count		Count	% of Off-system Count		Count	% of Off-system Count
Anderson	14	28.0%	Coryell	0	0.0%	Hardeman	1	7.1%
Andrews	0	0.0%	Cottle	0	0.0%	Hardin	2	7.1%
Angelina	2	5.4%	Crane	0	0.0%	Harris	27	1.9%
Aransas	0	0.0%	Crockett	0	0.0%	Harrison	6	18.2%
Archer	6	27.3%	Crosby	1	25.0%	Hartley	0	0.0%
Armstrong	0	0.0%	Culberson	0	0.0%	Haskell	0	0.0%
Atascosa	5	27.8%	Dallam	0	0.0%	Hays	0	0.0%
Austin	15	19.2%	Dallas	5	0.7%	Hemphill	2	40.0%
Bailey	0	0.0%	Dawson	0	0.0%	Henderson	6	16.7%
Bandera	0	0.0%	Deaf Smith	4	57.1%	Hidalgo	3	2.1%
Bastrop	4	5.5%	Delta	4	14.8%	Hill	44	32.1%
Baylor	1	33.3%	Denton	9	6.2%	Hockley	0	0.0%
Bee	3	20.0%	Dewitt	6	7.7%	Hood	0	0.0%
Bell	2	1.7%	Dickens	0	0.0%	Hopkins	8	13.8%
Bexar	8	3.0%	Dimmit	0	0.0%	Houston	42	49.4%
Blanco	1	20.0%	Donley	1	7.1%	Howard	3	50.0%
Borden	1	33.3%	Duval	0	0.0%	Hudspeth	0	0.0%
Bosque	2	12.5%	Eastland	3	12.5%	Hunt	10	9.9%
Bowie	0	0.0%	Ector	0	0.0%	Hutchinson	1	10.0%
Brazoria	82	36.1%	Edwards	0	0.0%	Irion	0	0.0%
Brazos	5	8.8%	Ellis	33	20.1%	Jack	13	20.0%
Brewster	1	20.0%	El Paso	67	44.4%	Jackson	9	23.1%
Briscoe	0	0.0%	Erath	10	13.9%	Jasper	2	6.3%
Brooks	0	0.0%	Falls	52	30.2%	Jeff Davis	0	0.0%
Brown	5	11.4%	Fannin	32	22.7%	Jefferson	18	18.9%
Burleson	14	29.2%	Fayette	13	10.6%	Jim Hogg	0	0.0%
Burnet	2	12.5%	Fisher	16	20.5%	Jim Wells	2	13.3%
Caldwell	1	2.3%	Floyd	1	100.0%	Johnson	6	7.6%
Calhoun	5	22.7%	Foard	3	27.3%	Jones	4	11.4%
Callahan	5	27.8%	Fort Bend	56	25.7%	Karnes	0	0.0%
Cameron	2	2.4%	Franklin	2	10.0%	Kaufman	11	28.2%
Camp	0	0.0%	Freestone	7	14.6%	Kendall	1	7.7%
Carson	0	0.0%	Frio	2	14.3%	Kenedy	0	0.0%
Cass	0	0.0%	Gaines	0	0.0%	Kent	3	42.9%
Castro	0	0.0%	Galveston	4	7.8%	Kerr	2	11.8%
Chambers	7	38.9%	Garza	0	0.0%	Kimble	0	0.0%
Cherokee	23	34.3%	Gillespie	3	20.0%	King	0	0.0%
Childress	0	0.0%	Glasscock	0	0.0%	Kinney	0	v
Clay	1	7.7%	Goliad	1	2.4%	Kleberg	1	50.0%
Cochran	0	0.0%	Gonzales	8	14.8%	Knox	2	40.0%
Coke	5	25.0%	Gray	8	42.1%	Lamar	9	8.7%
Coleman	0	0.0%	Grayson	13	5.4%	Lamb	0	0.0%
Collin	3	1.2%	Gregg	4	12.5%	Lampasas	2	14.3%
Collings-worth	2	11.8%	Grimes	12	14.1%	LaSalle	8	36.4%
Colorado	8	10.5%	Guadalupe	3	21.4%	Lavaca	9	7.1%
Comal	0	0.0%	Hale	0	0.0%	Lee	2	3.6%
Comanche	12	13.5%	Hall	4	18.2%	Leon	9	26.5%
Concho	2	40.0%	Hamilton	5	13.9%	Liberty	14	35.9%
Cooke	15	13.8%	Hansford	3	75.0%	Limestone	22	14.7%

Table A-5 (Continued). Count of Sub-standard-for-Load-Only Off-system Span-type Bridges by County, Showing Percent, in September 2003

County	Sub-standard-for-Load-Only Bridges		County	Sub-standard-for-Load-Only Bridges		County	Sub-standard-for-Load-Only Bridges	
	Count	% of Off-system Count		Count	% of Off-system Count		Count	% of Off-system Count
Lipscomb	1	33.3%	Parker	29	20.7%	Tarrant	6	1.8%
Live Oak	5	29.4%	Parmer	0	0.0%	Taylor	3	8.3%
Llano	1	14.3%	Pecos	0	0.0%	Terrell	0	0.0%
Loving	0	0.0%	Polk	27	32.9%	Terry	0	0.0%
Lubbock	0	0.0%	Potter	2	28.6%	Throckmor-ton	0	0.0%
Lynn	0	0.0%	Presidio	0	0.0%	Titus	0	0.0%
Madison	8	29.6%	Rains	1	6.3%	Tom Green	2	11.1%
Marion	0	0.0%	Randall	0	0.0%	Travis	4	1.7%
Martin	0	0.0%	Reagan	0	0.0%	Trinity	6	33.3%
Mason	4	50.0%	Real	0	0.0%	Tyler	10	20.8%
Matagorda	18	21.7%	Red River	5	11.4%	Upshur	0	0.0%
Maverick	2	12.5%	Reeves	0	0.0%	Upton	0	0.0%
McCulloch	4	33.3%	Refugio	1	4.5%	Uvalde	0	0.0%
McLennan	40	21.1%	Roberts	0	0.0%	Val Verde	0	0.0%
McMullen	1	25.0%	Robertson	7	18.9%	Van Zandt	18	22.0%
Medina	4	14.3%	Rockwall	3	75.0%	Victoria	5	6.3%
Menard	0	0%	Runnels	7	28.0%	Walker	5	20.0%
Midland	0	0.0%	Rusk	24	25.5%	Waller	22	37.9%
Milam	6	11.3%	Sabine	4	14.8%	Ward	0	0.0%
Mills	3	25.0%	San Augustine	12	54.5%	Washing-ton	26	24.1%
Mitchell	5	25.0%	San Jacinto	1	8.3%	Webb	10	16.9%
Montague	11	9.2%	San Patricio	1	5.0%	Wharton	43	23.2%
Montgom-ery	9	7.7%	San Saba	1	5.9%	Wheeler	3	15.8%
Moore	1	50.0%	Schleicher	0	0.0%	Wichita	4	16.0%
Morris	0	0.0%	Scurry	6	21.4%	Wilbarger	8	25.0%
Motley	2	22.2%	Shackel-ford	2	16.7%	Willacy	5	9.3%
Nacog-doches	5	4.4%	Shelby	20	24.1%	Williamson	6	5.1%
Navarro	18	20.7%	Sherman	0	0.0%	Wilson	5	15.2%
Newton	4	12.5%	Smith	31	34.1%	Winkler	0	0.0%
Nolan	9	33.3%	Somervell	0	0.0%	Wise	16	13.1%
Nueces	26	32.5%	Starr	1	11.1%	Wood	1	7.7%
Ochiltree	0	0.0%	Stephens	5	17.9%	Yoakum	0	0.0%
Oldham	0	0.0%	Sterling	0	0.0%	Young	2	10.5%
Orange	21	53.8%	Stonewall	2	14.3%	Zapata	0	0.0%
Palo Pinto	6	11.5%	Sutton	0	0.0%	Zavala	0	0.0%
Panola	0	0.0%	Swisher	1	20.0%			

Table A-6. Sub-standard-for-Load-Only Off-system Span-type Bridge Deck Area in Sq. Ft. by County, Showing Percent, in September 2003

County	Sub-standard-for-Load-Only Bridges		County	Sub-standard-for-Load-Only Bridges		County	Sub-standard-for-Load-Only Bridges	
	Deck Area (Sq. Ft.)	% of Off-system Deck Area		Deck Area (Sq. Ft.)	% of Off-system Deck Area		Deck Area (Sq. Ft.)	% of Off-system Deck Area
Anderson	8,692.5	12.2%	Coryell	0	0.0%	Hardeman	690.2	1.8%
Andrews	0	0.0%	Cottle	0	0.0%	Hardin	1,639.8	2.4%
Angelina	2,345.6	6.1%	Crane	0	0.0%	Harris	86,905.6	0.9%
Aransas	0	0.0%	Crockett	0	0.0%	Harrison	5,784.7	6.5%
Archer	4,814.9	22.8%	Crosby	1,026.0	13.9%	Hartley	0	0.0%
Armstrong	0	0.0%	Culberson	0	0.0%	Haskell	0	0.0%
Atascosa	3,541.0	19.8%	Dallam	0	0.0%	Hays	0	0.0%
Austin	10,470.0	12.6%	Dallas	22,120.9	0.2%	Hemphill	16,082.7	68.8%
Bailey	0	0.0%	Dawson	0	0.0%	Henderson	4,166.2	14.9%
Bandera	0	0.0%	Deaf Smith	4,705.0	60.7%	Hidalgo	4,044.8	0.3%
Bastrop	2,535.8	1.7%	Delta	3,392.1	13.4%	Hill	53,611.1	33.8%
Baylor	505.6	33.1%	Denton	12,530.4	2.0%	Hockley	0	0.0%
Bee	3,915.0	9.4%	Dewitt	4,333.6	3.4%	Hood	0	0.0%
Bell	6,003.2	1.5%	Dickens	0	0.0%	Hopkins	5,158.0	13.8%
Bexar	85,762.3	2.9%	Dimmit	0	0.0%	Houston	27,886.9	49.4%
Blanco	1,849.2	10.3%	Donley	375.0	1.4%	Howard	23,173.0	73.0%
Borden	8,549.8	66.7%	Duval	0	0.0%	Hudspeth	0.0	0.0%
Bosque	3,173.0	6.2%	Eastland	2,374.8	8.2%	Hunt	8,976.6	10.7%
Bowie	0	0.0%	Ector	0	0.0%	Hutchinson	2,964.0	4.7%
Brazoria	126,538.2	20.8%	Edwards	0	0.0%	Irion	0	0.0%
Brazos	5,737.5	5.1%	Ellis	38,307.4	15.4%	Jack	9,800.1	17.7%
Brewster	3,293.0	20.7%	El Paso	144,564.9	17.4%	Jackson	9,408.7	12.7%
Briscoe	0	0.0%	Erath	6,908.1	8.5%	Jasper	1,974.0	3.7%
Brooks	0	0.0%	Falls	51,300.8	27.9%	Jeff Davis	0.0	0.0%
Brown	4,062.5	4.3%	Fannin	19,527.2	20.0%	Jefferson	71,564.5	23.1%
Burleson	10,324.1	19.4%	Fayette	11,725.0	7.9%	Jim Hogg	0	0.0%
Burnet	1,996.2	7.0%	Fisher	12,631.9	16.0%	Jim Wells	4,450.5	16.0%
Caldwell	708.4	0.7%	Floyd	455.4	100.0%	Johnson	7,631.9	4.3%
Calhoun	5,005.7	16.3%	Foard	2,550.4	23.4%	Jones	4,157.9	7.4%
Callahan	15,468.8	54.8%	Fort Bend	78,608.1	11.6%	Karnes	0.0	0.0%
Cameron	5,161.2	1.0%	Franklin	1,699.5	11.3%	Kaufman	7,428.2	22.1%
Camp	0	0.0%	Freestone	4,881.4	13.8%	Kendall	724.5	1.4%
Carson	0	0.0%	Frio	1,120.0	8.7%	Kenedy	0.0	0.0%
Cass	0	0.0%	Gaines	0	0	Kent	4,046.7	41.9%
Castro	0	0.0%	Galveston	12,271.1	2.3%	Kerr	4,848.6	7.4%
Chambers	9,601.8	19.5%	Garza	0	0.0%	Kimble	0	0.0%
Cherokee	20,100.1	36.4%	Gillespie	2,371.0	6.4%	King	0	0.0%
Childress	0	0.0%	Glasscock	0	0	Kinney	0	0.0%
Clay	544.0	3.6%	Goliad	510.4	0.7%	Kleberg	1,950.0	19.9%
Cochran	0	0.0%	Gonzales	4,461.7	7.9%	Knox	1,387.6	37.5%
Coke	7,495.4	23.9%	Gray	20,807.4	47.1%	Lamar	6,829.7	7.4%
Coleman	0	0.0%	Grayson	12,758.5	3.2%	Lamb	0	0.0%
Collin	2,772.4	0.1%	Gregg	9,377.5	6.8%	Lampasas	1,056.0	2.8%
Collings-worth	1,540.0	9.8%	Grimes	11,396.9	15.3%	LaSalle	6,820.0	28.7%
Colorado	6,135.1	5.5%	Guadalupe	3,125.6	10.8%	Lavaca	8,875.1	3.9%
Comal	0	0.0%	Hale	0	0.0%	Lee	918.4	1.3%
Comanche	9,685.2	8.0%	Hall	3,034.1	12.9%	Leon	4,903.8	19.2%
Concho	3,179.9	49.5%	Hamilton	7,606.6	7.9%	Liberty	14,559.8	29.1%
Cooke	14,090.2	9.2%	Hansford	15,238.0	95.6%	Limestone	20,049.0	15.9%

Table A-6 (Continued). Sub-standard-for-Load-Only Off-system Span-type Bridge Deck Area by County, Showing Percent, in September 2003

County	Sub-standard-for-Load-Only Bridges		County	Sub-standard-for-Load-Only Bridges		County	Sub-standard-for-Load-Only Bridges	
	Deck Area (Sq. Ft.)	% of Off-system Deck Area		Deck Area (Sq. Ft.)	% of Off-system Deck Area		Deck Area (Sq. Ft.)	% of Off-system Deck Area
Lipscomb	620.0	32.3%	Parker	40,069.3	18.9%	Tarrant	11,241.9	0.3%
Live Oak	4,980.6	16.6%	Parmer	0	0.0%	Taylor	9,028.0	6.1%
Llano	480.0	7.8%	Pecos	0	0.0%	Terrell	0	0.0%
Loving	0	0.0%	Polk	18,515.4	26.1%	Terry	0	0.0%
Lubbock	0	0.0%	Potter	5,299.7	2.3%	Throckmor-ton	0	0.0%
Lynn	0	0.0%	Presidio	0	0.0%	Titus	0	0.0%
Madison	4,632.5	26.8%	Rains	511.2	5.4%	Tom Green	4,222.9	2.0%
Marion	0	0.0%	Randall	0	0.0%	Travis	4,031.3	0.2%
Martin	0	0.0%	Reagan	0	0.0%	Trinity	2,339.6	10.6%
Mason	2,642.5	30.9%	Real	0	0.0%	Tyler	8,136.0	21.1%
Matagorda	28,351.5	18.1%	Red River	3,736.1	8.9%	Upshur	0	0.0%
Maverick	2,878.8	1.5%	Reeves	0	0.0%	Upton	0	0.0%
McCulloch	2,784.2	11.5%	Refugio	1,064.8	2.7%	Uvalde	0	0.0%
McLennan	70,284.6	10.8%	Roberts	0	0.0%	Val Verde	0	0.0%
McMullen	756.0	32.5%	Robertson	4,662.6	8.7%	Van Zandt	14,357.0	26.5%
Medina	3,912.6	9.7%	Rockwall	2,417.0	36.4%	Victoria	4,966.5	2.2%
Menard	0	0.0%	Runnels	24,526.1	40.2%	Walker	3,228.0	10.7%
Midland	0	0.0%	Rusk	28,138.7	22.3%	Waller	24,874.0	27.9%
Milam	6,748.5	6.7%	Sabine	2,981.3	9.9%	Ward	0	0.0%
Mills	7,411.6	35.4%	San Augustine	8,369.1	54.3%	Washing-ton	18,483.3	16.6%
Mitchell	5,500.0	12.7%	San Jacinto	1,029.3	4.7%	Webb	5,711.6	0.9%
Montague	8,419.8	7.8%	San Patricio	1,147.5	3.1%	Wharton	43,510.3	16.8%
Montgom-ery	23,993.2	5.7%	San Saba	1,808.0	5.5%	Wheeler	3,872.1	20.2%
Moore	486.0	27.2%	Schleicher	0	0.0%	Wichita	3,423.4	4.4%
Morris	0	0.0%	Scurry	7,914.7	15.9%	Wilbarger	7,243.5	22.5%
Motley	1,179.0	8.6%	Shackel-ford	2,998.0	12.3%	Willacy	6,144.2	4.8%
Nacog-doches	3,566.4	2.3%	Shelby	16,343.2	29.5%	Williamson	8,816.7	2.2%
Navarro	16,600.0	15.1%	Sherman	0	0.0%	Wilson	3,525.0	5.0%
Newton	2,480.0	7.3%	Smith	48,312.3	32.9%	Winkler	0	0.0%
Nolan	6,605.8	24.8%	Somervell	0	0.0%	Wise	21,846.7	14.7%
Nueces	26,811.1	14.0%	Starr	429.0	0.7%	Wood	372.6	2.1%
Ochiltree	0	0.0%	Stephens	5,164.7	10.3%	Yoakum	0	0.0%
Oldham	0	0.0%	Sterling	0	0.0%	Young	1,327.5	4.5%
Orange	80,511.2	63.3%	Stonewall	1,196.4	3.1%	Zapata	0	0.0%
Palo Pinto	7,519.6	13.2%	Sutton	0	0.0%	Zavala	0	0.0%
Panola	0.0	0.0%	Swisher	1,058.4	17.8%			

Appendix B – FY 2003 PWP/EMP Annual Report

Background. On July 27, 2000, an amendment to 43 TAC Section 15.55 relating to changes in the local funding requirements of Category 6 projects received final approval by the Commission, and became effective August 20, 2000. This rule change instituted what has come to be referred to as the department's Participation-Waived Project (PWP) program. An additional amendment to this rule that became effective on November 14, 2001 expanded the types of work that qualified for this program and made the program more flexible.

The usual federal-state-local government cost participation percentages required on off-system bridge projects is 80-10-10. However, the August 2000 amendment to Article 15.55 provided that the 10 percent local government cost participation could be waived if the local government agreed to use an equivalent dollar-amount to improve other deficient structures under its jurisdiction. The project on which the 10-percent local cost participation is waived is referred to as the "participation-waived" project, while the project(s) to be performed by the local government in return for the waiver is referred to as the "equivalent-match" project(s) (EMP). The November 2001 amendment expanded the types of work that qualify for equivalent-match projects to include safety related work and clarified the type of structures on which this work could be performed to include low water crossings. It also allowed local governments to perform EMP work in geographically adjacent governmental units.

The participation-waived projects must be Construct or Develop authorized in the Unified Transportation Program Category 6. For the purposes of this program, eligible structures for address under equivalent-match projects not only include those meeting the Federal Highway Administration (FHWA) bridge definition that are deficient-classified, but also include mainlane cross-drainage structures and low water crossings that do not meet the FHWA bridge definition but are deficient. The equivalent-match bridge or mainlane cross-drainage structure must be classified as deficient, or be weight-restricted for school buses.

This program has expanded the number of local governments participating in our off-system bridge program and has provided many other local governments with the incentive to increase their participation. Through the equivalent-match projects, many structures that had deficiencies but which were not programmed in our off-system bridge program have been scheduled for improvements which will increase their safety and efficiency. Overall, the program should result in accelerating the rate at which structurally deficient and functionally obsolete off-system bridges are improved throughout the state.

The following report presents a summary of the PWP program for FY 2003. These PWP/EMP reports are issued annually and provide information on both the current fiscal year's results and the cumulative results of the program up to the time of this report.

The Bridge Division maintains a complete database containing all participation-waived projects and their associated equivalent-match projects, by district. The database includes dates for the lettings of PWP projects, both the required and actual completion dates for the EMP projects,

and an indication of any EMP projects that are overdue. The districts provide information for these dates annually during the month of November.

FY 2003 Summary. For FY 2003, 16 of the 25 districts executed participation-waived off-system bridge project agreements, for a total of 133 participation-waived projects and 192 equivalent-match projects. Cost estimates for the 133 participation-waived projects total $44.80M with total local participation of $7.30M, of which $4.19M has been waived.

Of the 192 equivalent-match projects having a $5.99M total estimated cost, 44 (23%) are on the National Bridge Inventory (NBI) for an estimated cost of $3.71M, and 148 (77%) are local projects not on the NBI for an estimated cost of $2.29M.

Of the 192 equivalent-match projects, 161 (84%) are on school bus routes. Of the 44 equivalent-match projects on the NBI, 38 (86%) are on school bus routes. Of the 148 local projects not on the NBI, 123 (83%) are on school bus routes.

Of the 133 participation-waived projects with agreements executed in FY 2003, 11 (8%) have been let to contract. Of the 192 associated equivalent-match projects, 23 (12%) have been completed.

Update on Activity since Initiation in FY 2001. Since the program was initiated in FY 2001, 21 of the 25 districts have executed participation-waived off-system bridge project agreements, for a total of 588 participation-waived projects and 947 equivalent-match projects. Cost estimates for the 588 participation-waived projects total $180.15M with total local participation of $20.89M, of which $16.18M has been waived.

Of the 947 equivalent-match projects having a $21.20M total estimated cost, 327 (35%) are on the National Bridge Inventory (NBI) for an estimated cost of $13.93M, and 620 (65%) are local projects not on the NBI for an estimated cost of $7.27M.

Of the 947 equivalent-match projects, 754 (80%) are on school bus routes. Of the 327 equivalent-match projects on the NBI, 270 (83%) are on school bus routes. Of the 620 local projects not on the NBI, 484 (78%) are on school bus routes.

Of the 588 participation-waived projects with agreements executed since the initiation of the program in FY 2001, 319 (54%) have been let to contract. Of the 947 associated equivalent-match projects, 316 (33%) have been completed.

Attachments. The following attachments are appended to this report:
- Attachment A – FY 2001 Summary of Participation Waived Project Information
- Attachment B – FY 2002 Summary of Participation Waived Project Information
- Attachment C – FY 2003 Summary of Participation Waived Project Information
- Attachment D – Cumulative Summary of PWP/EMP Projects
- Attachment E – Summary of PWP/EMP Projects
- Attachment F – Summary of PWP/EMP $ Amounts
- Attachment F – Off-System Bridge Inventory 1999-2003

Questions concerning the participation-waived project program may be addressed to Michael S. O'Toole, P.E., Director of Project Development in the Bridge Division, at telephone number (512) 416-2240.

Attachment A
FY 2001 Summary of Participation Waived Project Information

District	No. of PWPs	No. of EMPs	EMPs on NBI	EMP (NBI) on School Bus Rt.	EMP (nonNBI) on School Bus Rt.	Total PWP Project Estimates	Total Local Participation Amounts	$ Amt for EMP (NBI)	$ Amt for EMP (nonNBI)	Total $ Waived for PWPs	PWP Projects Let to Contract	EMP Projects Completed	EMP Projects Overdue
(08) ABL	3	5	5	0	0	$832,221	$80,012	$87,000	$0	$80,012	3	2	
(04) AMA	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(19) ATL	16	11	0	0	11	$3,884,939	$324,579	$0	$305,077	$265,786	12	0	
(14) AUS	7	12	8	7	3	$4,826,055	$1,291,019	$937,283	$86,866	$358,098	6	10	
(20) BMT	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(23) BWD	7	35	0	0	32	$1,621,000	$162,100	$0	$171,603	$162,100	6	10	
(17) BRY	9	10	9	9	1	$2,225,345	$214,373	$212,888	$6,300	$196,856	8	8	
(25) CHS	21	53	5	2	9	$3,314,922	$263,432	$36,875	$256,064	$245,919	17	40	
(16) CRP	5	1	1	1		$1,077,700	$107,770	$117,473	$0	$107,770	1	1	
(18) DAL	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(24) ELP	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(02) FTW	38	41	39	38	2	$12,681,197	$1,212,476	$1,392,900	$30,400	$1,136,258	32	20	
(12) HOU	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(22) LRD	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(05) LBB	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(11) LKF	12	55	5	3	47	$3,888,034	$323,831	$127,860	$220,167	$303,852	12	20	
(06) ODA	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(01) PAR	33	34	15	14	19	$4,625,571	$401,394	$273,550	$116,664	$385,704	33	8	
(21) PHR	4	1	1	1	0	$1,103,012	$46,818	$37,796	$0	$37,795	3	1	
(07) SJT	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(15) SAT	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(10) TYL	6	5	5	4	0	$2,425,634	$168,005	$167,338	$0	$163,505	6	3	
(09) WAC	8	11	11	10	0	$3,063,000	$306,300	$289,800	$0	$244,358	8	10	
(03) WFS	21	25	5	5	20	$4,174,114	$417,420	$135,225	$427,451	$367,653	15	14	
(13) YKM	25	39	19	11	16	$8,103,029	$810,262	$714,084	$160,055	$752,139	24	17	
Totals	**215**	**338**	**128**	**105**	**160**	**$57,845,773**	**$6,129,791**	**$4,530,072**	**$1,780,647**	**$4,807,805**	**186**	**164**	**0**

Attachment B
FY 2002 Summary of Participation Waived Project Information

District	No. of PWPs	No. of EMPs	EMPs on NBI	EMP(NBI) on School Bus Rt.	EMP(nonNBI) on School Bus Rt.	Total PWP Project Estimates	Total Local Participation Amounts	$ Amt for EMP (NBI)	$ Amt for EMP (nonNBI)	Total $ Amount Waived for PWPs	PWP Projects Let to Contract	EMP Projects Completed	EMP Projects Overdue
(08) ABL	10	14	10	1	0	$2,153,544	$206,442	$236,398	$33,232	$200,190	10	5	
(04) AMA	3	22	17	15	4	$7,815,081	$781,508	$304,055	$485,000	$780,475	2	10	
(19) ATL	1	1	0	0	1	$227,215	$22,721	$0	$18,020	$18,020	0	0	
(14) AUS	22	31	5	1	19	$7,035,845	$703,583	$651,189	$487,709	$701,711	10	5	
(20) BMT	1	6	0	0	6	$663,243	$66,324	$0	$64,241	$61,734	1	0	
(23) BWD	14	79	0	0	43	$3,698,600	$322,560	$0	$388,294	$322,560	13	28	
(17) BRY	15	17	11	11	6	$5,848,217	$451,848	$306,610	$76,886	$384,202	7	13	
(25) CHS	12	30	3	3	23	$1,488,300	$148,830	$26,600	$132,400	$148,830	1	0	
(16) CRP	17	8	5	5	3	$4,010,378	$401,039	$505,617	$67,522	$401,039	10	3	
(18) DAL	17	7	6	5	1	$3,945,054	$394,507	$437,928	$33,000	$360,932	3	0	
(24) ELP	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(02) FTW	33	34	32	31	2	$11,392,846	$1,139,285	$1,249,700	$39,600	$1,124,135	8	8	
(12) HOU	2	2	1	1	1	$1,149,500	$114,950	$114,103	$358,000	$114,950	1	0	
(22) LRD	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(05) LBB	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(11) LKF	6	10	3	1	7	$993,377	$80,165	$41,480	$45,279	$80,165	2	2	
(06) ODA	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(01) PAR	26	36	15	15	21	$4,795,498	$450,978	$382,913	$88,701	$437,251	12	7	
(21) PHR	2	1	1	1	0	$530,550	$16,977	$33,000	$0	$16,977	2	1	
(07) SJT	1	1	1	1	0	$563,850	$56,385	$57,000	$0	$56,385	1	0	
(15) SAT	4	10	1	1	9	$3,808,741	$380,875	$70,516	$310,400	$356,875	3	0	
(10) TYL	5	12	12	12	0	$2,677,350	$248,457	$304,702	$0	$248,457	5	5	
(09) WAC	14	40	26	18	14	$7,422,466	$742,246	$675,250	$124,069	$699,496	12	12	
(03) WFS	21	30	1	1	29	$3,094,420	$309,442	$54,078	$265,273	$290,548	10	14	
(13) YKM	14	26	5	4	12	$4,190,446	$419,045	$242,500	$180,553	$382,709	9	16	
Totals	**240**	**417**	**155**	**127**	**201**	**$77,504,521**	**$7,458,167**	**$5,693,639**	**$3,198,179**	**$7,187,641**	**122**	**129**	**0**

Attachment C
FY 2003 Summary of Participation Waived Project Information

District	No. of PWPs	No. of EMPs	EMPs on NBI	EMP(NBI) on School Bus Rt.	EMP(nonNBI) on School Bus Rt.	Total PWP Project Estimates	Total Local Participation Amounts	$ Amt for EMP (NBI)	$ Amt for EMP (nonNBI)	Total $ Amount Waived for PWPs	PWP Projects Let to Contract	EMP Projects Completed	EMP Projects Overdue
(08) ABL	9	20	2	0	10	$2,066,909	$206,691	$8,200	$282,825	$198,572	2	2	
(04) AMA	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(19) ATL	3	5	0	0	4	$1,402,078	$140,208	$0	$145,950	$140,208	0	0	
(14) AUS	3	4	1	1	3	$1,432,029	$143,203	$38,200	$89,800	$106,663	0	0	
(20) BMT	5	7	4	4	2	$2,444,745	$185,731	$149,982	$74,000	$185,731	0	1	
(23) BWD	6	47	0	0	41	$1,911,000	$191,100	$0	$192,542	$191,100	0	0	
(17) BRY	6	8	5	5	3	$1,613,320	$157,775	$125,452	$28,286	$143,770	5	5	
(25) CHS	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(16) CRP	13	13	2	1	7	$3,234,690	$323,466	$541,550	$526,356	$323,466	0	11	
(18) DAL	28	11	9	9	2	$7,973,392	$797,339	$584,730	$173,769	$678,965	1	2	
(24) ELP	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(02) FTW	4	4	4	3	0	$7,776,200	$3,687,673	$981,500	$0	$777,610	0	0	
(12) HOU	14	7	6	6	1	$6,048,190	$604,819	$967,500	$83,000	$599,079	1	0	
(22) LRD	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(05) LBB	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(11) LKF	3	13	2	0	7	$863,416	$59,820	$29,660	$31,595	$59,820	0	0	
(06) ODA	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(01) PAR	20	27	2	2	25	$2,750,436	$275,044	$64,375	$220,124	$275,044	0	0	
(21) PHR	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(07) SJT	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(15) SAT	2	2	0	0	2	$743,875	$74,388	$0	$95,000	$63,818	0	0	
(10) TYL	2	3	2	2	1	$623,256	$62,326	$44,500	$18,300	$62,326	0	2	
(09) WAC	3	12	3	3	8	$1,207,850	$120,785	$61,053	$59,210	$112,785	1	0	
(03) WFS	0	0	0	0	0	$0	$0	$0	$0	$0	0	0	
(13) YKM	12	9	2	2	7	$2,710,283	$271,028	$108,500	$268,000	$269,297	1	0	
Totals	**133**	**192**	**44**	**38**	**123**	**$44,801,669**	**$7,301,396**	**$3,705,202**	**$2,288,757**	**$4,188,254**	**11**	**23**	**0**

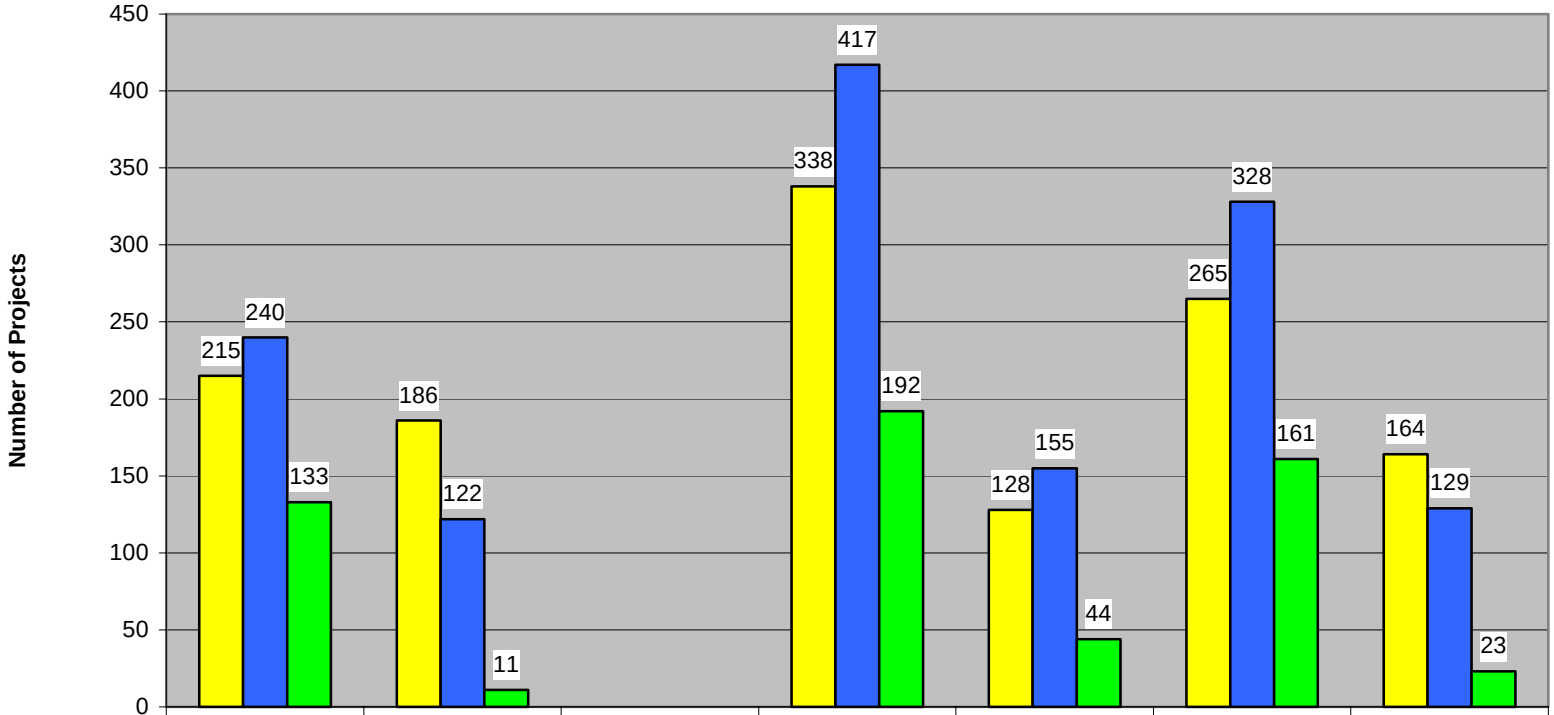
Attachment D
Cumulative Summary of Participation Waived Project Information

(Updated 12/07/03)

	No. of PWPs	No. of EMPs	EMPs on NBI	EMP(NBI) on School Bus Rt.	EMP(nonNBI) on School Bus Rt.	Total PWP Project Estimates	Total Local Participation Amounts	$ Amt for EMP (NBI)	$ Amt for EMP (nonNBI)	Total $ Amount Waived for PWPs	PWP Projects Let to Contract	EMP Projects Completed	EMP Projects Overdue
FY2001	215	338	128	105	160	$57,845,773	$6,129,791	$4,530,072	$1,780,647	$4,807,805	186	164	0
FY2002	240	417	155	127	201	$77,504,521	$7,458,167	$5,693,639	$3,198,179	$7,187,641	122	129	0
FY2003	133	192	44	38	123	$44,801,669	$7,301,396	$3,705,202	$2,288,757	$4,188,254	11	23	0
Total	**588**	**947**	**327**	**270**	**484**	**$180,151,963**	**$20,889,354**	**$13,928,913**	**$7,267,583**	**$16,183,700**	**319**	**316**	**0**

Attachment E

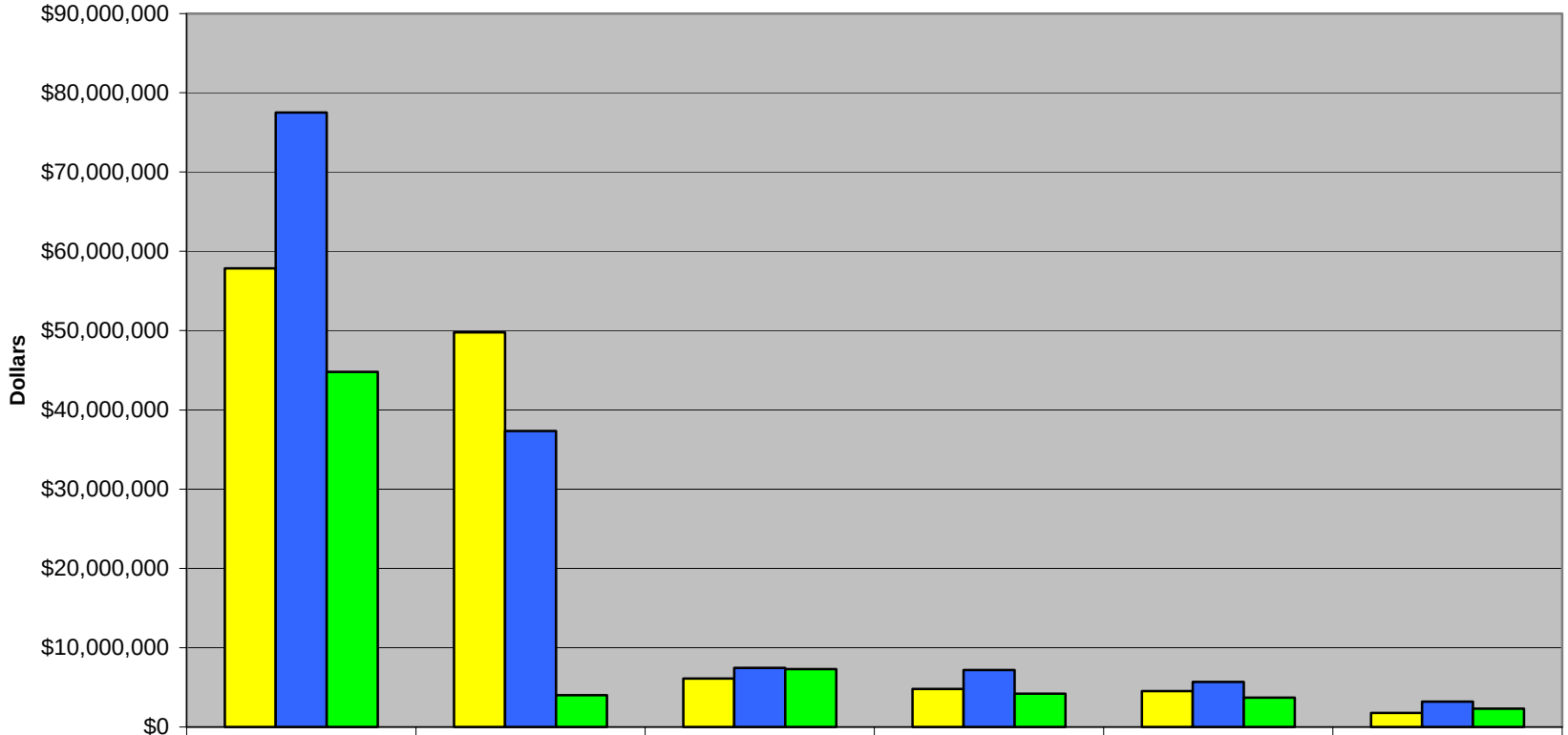
Summary of PWP/EMP Projects



	No. of PWP Agreements Executed in FY	PWPs Let to date for PWPs Executed in FY		No. of EMPs	EMPs on the NBI	EMPs on School Bus Rt.	EMPs Completed to date for PWPs Executed in FY
FY 2001	215	186		338	128	265	164
FY 2002	240	122		417	155	328	129
FY 2003	133	11		192	44	161	23

Attachment F

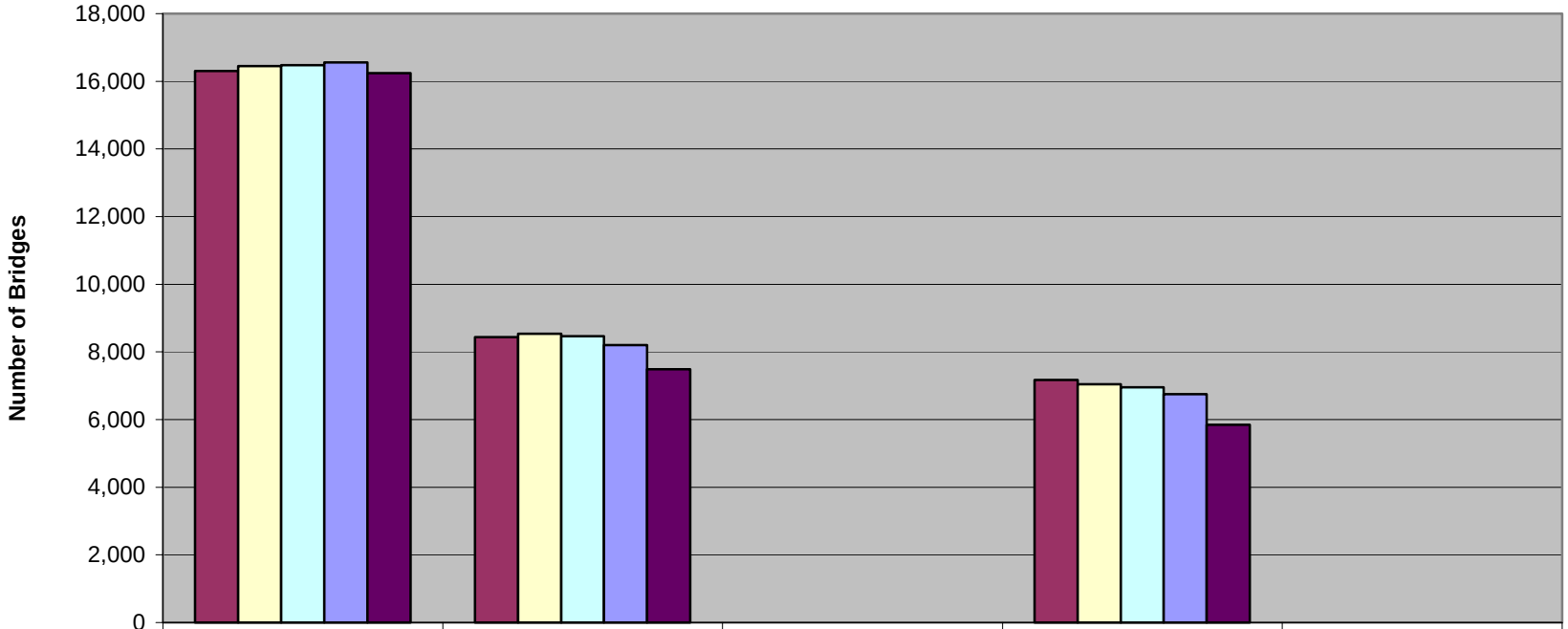
Summary of PWP/EMP $ Amounts



	Total PWP Project Estimates	$ Amt for PWPs Let to date for PWPs Executed in FY	Total Required Local Participation Amounts for PWPs	Total $ Amount Waived for PWPs	$ Amount for EMPs (NBI)	$ Amount for EMPs (nonNBI)
FY 2001	$57,845,773	$49,767,632	$6,129,791	$4,807,805	$4,530,072	$1,780,647
FY 2002	$77,504,521	$37,327,362	$7,458,167	$7,187,641	$5,693,639	$3,198,179
FY 2003	$44,801,669	$3,993,337	$7,301,396	$4,188,254	$3,705,202	$2,288,757

Attachment G

Off-System Bridge Inventory FY1999-FY2003
(based on Sept. Pocket Facts)



	Total Off-System Bridges	Deficient/Obsolete Bridges Including Substandard for Load	% Deficient/Obsolete Including Substandard for Load Only	Deficient/Obsolete by FHWA Criteria Only	% Deficient/Obsolete by FHWA Criteria Only
FY 1999	16,300	8,440	51.8%	7,170	44.0%
FY 2000	16,448	8,538	51.9%	7,046	42.8%
FY 2001	16,476	8,461	51.4%	6,957	42.2%
FY 2002	16,560	8,205	49.6%	6,748	40.8%
FY 2003	16,242	7,489	46.1%	5,847	36.0%

Appendix C – Texas Counties and TxDOT Districts

Figure C-1. Texas Counties and TxDOT Districts

Table C-1. Texas Counties, County Numbers, and TxDOT District

County	County Number	TxDOT District	County	County Number	TxDOT District	County	County Number	TxDOT District
Anderson	1	Tyler	Coryell	50	Waco	Hardeman	100	Childress
Andrews	2	Odessa	Cottle	51	Childress	Hardin	101	Beaumont
Angelina	3	Lufkin	Crane	52	Odessa	Harris	102	Houston
Aransas	4	Corpus Christi	Crockett	53	San Angelo	Harrison	103	Atlanta
Archer	5	Wichita Falls	Crosby	54	Lubbock	Hartley	104	Amarillo
Armstrong	6	Amarillo	Culberson	55	El Paso	Haskell	105	Abilene
Atascosa	7	San Antonio	Dallam	56	Amarillo	Hays	106	Austin
Austin	8	Yoakum	Dallas	57	Dallas	Hemphill	107	Amarillo
Bailey	9	Lubbock	Dawson	58	Lubbock	Henderson	108	Tyler
Bandera	10	San Antonio	Deaf Smith	59	Amarillo	Hidalgo	109	Pharr
Bastrop	11	Austin	Delta	60	Paris	Hill	110	Waco
Baylor	12	Wichita Falls	Denton	61	Dallas	Hockley	111	Lubbock
Bee	13	Corpus Christi	Dewitt	62	Yoakum	Hood	112	Fort Worth
Bell	14	Waco	Dickens	63	Childress	Hopkins	113	Paris
Bexar	15	San Antonio	Dimmit	64	Laredo	Houston	114	Lufkin
Blanco	16	Austin	Donley	65	Childress	Howard	115	Abilene
Borden	17	Abilene	Duval	67	Laredo	Hudspeth	116	El Paso
Bosque	18	Waco	Eastland	68	Brownwood	Hunt	117	Paris
Bowie	19	Atlanta	Ector	69	Odessa	Hutchinson	118	Amarillo
Brazoria	20	Houston	Edwards	70	San Angelo	Irion	119	San Angelo
Brazos	21	Bryan	Ellis	71	Dallas	Jack	120	Fort Worth
Brewster	22	El Paso	El Paso	72	El Paso	Jackson	121	Yoakum
Briscoe	23	Childress	Erath	73	Fort Worth	Jasper	122	Beaumont
Brooks	24	Pharr	Falls	74	Waco	Jeff Davis	123	El Paso
Brown	25	Brownwood	Fannin	75	Paris	Jefferson	124	Beaumont
Burleson	26	Bryan	Fayette	76	Yoakum	Jim Hogg	125	Pharr
Burnet	27	Austin	Fisher	77	Abilene	Jim Wells	126	Corpus Christi
Caldwell	28	Austin	Floyd	78	Lubbock	Johnson	127	Fort Worth
Calhoun	29	Yoakum	Foard	79	Childress	Jones	128	Abilene
Callahan	30	Abilene	Fort Bend	80	Houston	Karnes	129	Corpus Christi
Cameron	31	Pharr	Franklin	81	Paris	Kaufman	130	Dallas
Camp	32	Atlanta	Freestone	82	Bryan	Kendall	131	San Antonio
Carson	33	Amarillo	Frio	83	San Antonio	Kenedy	66	Pharr
Cass	34	Atlanta	Gaines	84	Lubbock	Kent	132	Abilene
Castro	35	Lubbock	Galveston	85	Houston	Kerr	133	San Antonio
Chambers	36	Beaumont	Garza	86	Lubbock	Kimble	134	San Angelo
Cherokee	37	Tyler	Gillespie	87	Austin	King	135	Childress
Childress	38	Childress	Glasscock	88	San Angelo	Kinney	136	Laredo
Clay	39	Wichita Falls	Goliad	89	Corpus Christi	Kleberg	137	Corpus Christi
Cochran	40	Lubbock	Gonzales	90	Yoakum	Knox	138	Childress
Coke	41	San Angelo	Gray	91	Amarillo	Lamar	139	Paris
Coleman	42	Brownwood	Grayson	92	Paris	Lamb	140	Lubbock
Collin	43	Dallas	Gregg	93	Tyler	Lampasas	141	Brownwood
Collings-worth	44	Childress	Grimes	94	Bryan	LaSalle	142	Laredo
Colorado	45	Yoakum	Guadalupe	95	San Antonio	Lavaca	143	Yoakum
Comal	46	San Antonio	Hale	96	Lubbock	Lee	144	Austin
Comanche	47	Brownwood	Hall	97	Childress	Leon	145	Bryan
Concho	48	San Angelo	Hamilton	98	Waco	Liberty	146	Beaumont
Cooke	49	Wichita Falls	Hansford	99	Amarillo	Limestone	147	Waco

Table C-1 (Continued). Texas Counties, County Numbers, and TxDOT District

County	County Number	TxDOT District	County	County Number	TxDOT District	County	County Number	TxDOT District
Lipscomb	148	Amarillo	Parker	184	Fort Worth	Tarrant	220	Fort Worth
Live Oak	149	Corpus Christi	Parmer	185	Lubbock	Taylor	221	Abilene
Llano	150	Austin	Pecos	186	Odessa	Terrell	222	Odessa
Loving	151	Odessa	Polk	187	Lufkin	Terry	223	Lubbock
Lubbock	152	Lubbock	Potter	188	Amarillo	Throckmor-ton	224	Wichita Falls
Lynn	153	Lubbock	Presidio	189	El Paso	Titus	225	Atlanta
Madison	154	Bryan	Rains	190	Paris	Tom Green	226	San Angelo
Marion	155	Atlanta	Randall	191	Amarillo	Travis	227	Austin
Martin	156	Odessa	Reagan	192	San Angelo	Trinity	228	Lufkin
Mason	157	Austin	Real	193	San Angelo	Tyler	229	Beaumont
Matagorda	158	Yoakum	Red River	194	Paris	Upshur	230	Atlanta
Maverick	159	Laredo	Reeves	195	Odessa	Upton	231	Odessa
McCulloch	160	Brownwood	Refugio	196	Corpus Christi	Uvalde	232	San Antonio
McLennan	161	Waco	Roberts	197	Amarillo	Val Verde	233	Laredo
McMullen	162	San Antonio	Robertson	198	Bryan	Van Zandt	234	Tyler
Medina	163	San Antonio	Rockwall	199	Dallas	Victoria	235	Yoakum
Menard	164	San Angelo	Runnels	200	San Angelo	Walker	236	Bryan
Midland	165	Odessa	Rusk	201	Tyler	Waller	237	Houston
Milam	166	Bryan	Sabine	202	Lufkin	Ward	238	Odessa
Mills	167	Brownwood	San Augustine	203	Lufkin	Washing-ton	239	Bryan
Mitchell	168	Abilene	San Jacinto	204	Lufkin	Webb	240	Laredo
Montague	169	Wichita Falls	San Patricio	205	Corpus Christi	Wharton	241	Yoakum
Montgom-ery	170	Houston	San Saba	206	Brownwood	Wheeler	242	Childress
Moore	171	Amarillo	Schleicher	207	San Angelo	Wichita	243	Wichita Falls
Morris	172	Atlanta	Scurry	208	Abilene	Wilbarger	244	Wichita Falls
Motley	173	Childress	Shackel-ford	209	Abilene	Willacy	245	Pharr
Nacog-doches	174	Lufkin	Shelby	210	Lufkin	Williamson	246	Austin
Navarro	175	Dallas	Sherman	211	Amarillo	Wilson	247	San Antonio
Newton	176	Beaumont	Smith	212	Tyler	Winkler	248	Odessa
Nolan	177	Abilene	Somervell	213	Fort Worth	Wise	249	Fort Worth
Nueces	178	Corpus Christi	Starr	214	Pharr	Wood	250	Tyler
Ochiltree	179	Amarillo	Stephens	215	Brownwood	Yoakum	251	Lubbock
Oldham	180	Amarillo	Sterling	216	San Angelo	Young	252	Wichita Falls
Orange	181	Beaumont	Stonewall	217	Abilene	Zapata	253	Pharr
Palo Pinto	182	Fort Worth	Sutton	218	San Angelo	Zavala	254	Laredo
Panola	183	Atlanta	Swisher	219	Lubbock			

Texas Department of Transportation
Bridge Division